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Justice and equity approaches to college and university student food (in)security

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IN THIS ISSUE
DUNCAN HILCHEY

Winter 2022–2023 open call content in a two-part issue
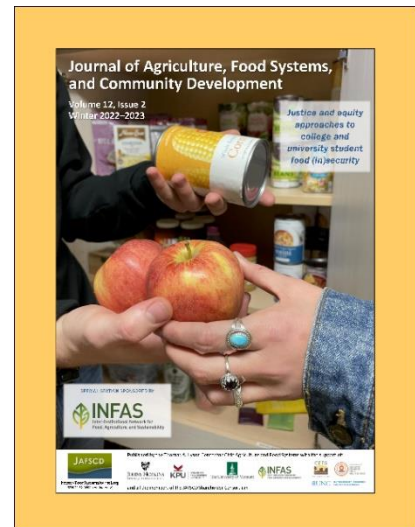
I n this winter 2022–2023 issue of JAFSCD, we offer you a packed two-part issue! The first part is a special section entitled **Justice and Equity Approaches to College and University Student Food (In)Security**, sponsored by the Inter-institutional Network for Food, Agriculture, and Sustainability (INFAS). You can get an overview of the section by reading the introduction to the special section by special section guest editors **Rachael Budowle**, **Christine M. Porter**, and **Caitlin McLennan**.

Following the special section is a diverse selection of open-call papers, from meat processing and marketing to critical food policy literacy and a lot in between. We begin the open-call section of the issue with **John Ikerd**'s "The Economic Pamphleteer" column. His column, *Economies of scale in food production,* gives us a lesson in how the industrial food system dominates markets; he calls for food shoppers to more fully appreciate the effects of their purchases on people and the environment. As this has been a decades-long issue, it begs the question: is simply marketing the virtues of good food enough? What about improved public policy and civil society efforts to turn the tide in the infosphere?

Our first two open-call papers deal with local meats in South Carolina and meat processors in Missouri. In *Marketing opportunities and challenges for locally raised meats: An online consumer survey in South Carolina*, **Steven T. Richards** and **Michael Vassalos** identify the characteristics of local meat consumers in the state, their willingness to pay for local meat products, and the critical barriers local meat producers need to overcome to tap this market. They also noted the difficulties experienced by processors, which leads to our next paper: *Understanding small- and very-small-scale size meat processors in Missouri to strengthen the local supply chain* by **Muh Syukron** and **Ye Su**. They found that three-quarters of the meat processors in their study thrived after the pandemic, but a critical ongoing barrier to the expansion of their business is finding a steady and reliable source of labor.

Next, in *The experience of Vermont local food businesses during the first year of the COVID-19 pandemic,* **Claire Whitehouse**, **David Conner**, **Lisa Chase**, and **Travis W. Reynolds** find that the most significant factor in business resilience during the pandemic was the health of the business *before* that shock. They therefore recommend that the most effective policies to encourage business resilience would focus not only on crisis response, but on fostering an econ-

On our cover: University of Wyoming students sharing food from the Bim Kendall House Food Share Cabinet. See all the papers in the special section on Justice and Equity Approaches to College and University Student Food (In)Security in this issue, including "Narrowing the equity gap in student food security: A student-led approach at the University of Wyoming" by Christine M. Porter, Kami Grimm, and Rachael Budowle.

Photo by Kellyn Chandler

omy in which small businesses can do well under normal circumstances.

Our next two papers put food systems–based community development in contexts that have not received much attention: intentional communities, and suburbs. In *Exploring the motivations, satisfactions, and well-being of agricultural intentional community residents*, **Jess M. Lasoff-Santos** and **Raymond K. De Young** find that while engagement in local food activities elicits intrinsic satisfaction (e.g., a sense of competence) for residents of an ecovillage (for example), it does not appear to strongly increase psychological benefits (e.g., a sense of well-being). In *Suburban agriculture, immigrant farmers, and access to agricultural services and resources,* **Lin Xie**, **Zeyuan Qiu**, and **Mei R. Fu** identify language barriers, cultural differences, distrust, isolation, and the "liability of newness" as key obstacles for immigrant farmers in suburban areas in accessing critical services and resources.

Susanna Klassen, **Lydia Medland**, **Poppy Nicol**, and **Hannah Pitt** then make a thoughtful and compelling case for including labor welfare in future definitions or calculations of what qualifies as "good food" in their paper *Pathways for advancing good work in food systems: Reflecting on the international Good Work for Good Food Forum*.

In *Civil society engagement in food systems governance in Canada: Experiences, gaps, and possibilities,* **Charles Z. Levkoe**, **Peter Andrée**, **Patricia Ballamingie**, **Kirsti Tasala**, **Amanda Wilson**, and **Monika Korzun** argue that while Canadian civil society organizations are generally successful in engaging diverse stakeholders in food systems work, it is less clear how well they actually engage those most affected by public policy.
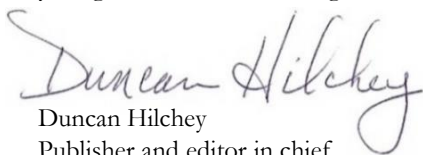
Next, **Hannah Dankbar**, **Courtney Long**, **Dara Bloom**, **Kaley Hohenshell**, **Emma Brinkmeyer**, and **Bre Miller** present a new and cutting-edge core competencies framework for evaluating food system training courses in *Applying emerging core competencies to extension training courses for local food system practitioners*. This core competency framework will be valuable in enhancing the quality and utility of food systems theory and practice.

In *Connectivity and racial equity in responding to COVID-19 impacts in the Chicago regional food system*, **Rowan B. Obach**, **Tania Schusler**, **Paulina Vaca**, **Sydney Durkin**, and **Ma'raj Sheikh** explore the efficacy of a "rapid response" effort to address food insecurity in the Windy City at the outbreak of the pandemic, and particularly its effects on communities of color.

We wrap up the issue with our final paper, *Critical food policy literacy: Conceptualizing community municipal food policy engagement,* in which **Carol E. Ramos-Gerena** conducts a systematic review of the literature to proffer the concept of "food policy literacy" as a strategy for maximizing productive communication among policymakers, stakeholder organizations, and vulnerable populations. Ramos-Gerena generously translated her article into Spanish to broaden access to this work. This is a pilot for JAFSCD—we hope to increase the number of articles we can provide in Spanish in the near future.

To conclude, I want to return to food insecurity in higher education. It is essential for scholars, professionals, and practitioners to appreciate the value that colleges and universities provide as an opportunity to study community food systems in a microcosm. As living laboratories, many institutions have the advantages that they (1) attract and assemble student bodies of diverse demographic and cultural backgrounds, (2) can test out a wide range of policies, strategies, and interventions to mitigate food insecurity, and (3) have a ready population of student residents who are convenient and cost-effective to study. JAFSCD would like to see comparative studies of institutions that engage in student food insecurity and institutions that do not, the results of which might accelerate the expansion of institutional policy and practice in this arena. Of course, how to broaden the lessons learned in these living laboratories to the environments beyond them should also be among the next steps in food system research and practice. We look forward to publishing more on this critical subject in future issues.

Until then, we solute the researchers and practitioners working on ways to stave off hunger among our young and vulnerable college students. It is critical and righteous work!

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Justice and equity approaches to college and university student food (in)security: Introduction to the special section

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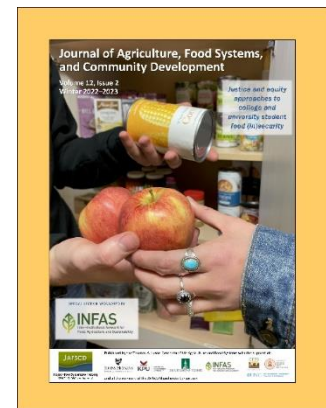
According to myriad studies, college and university student food insecurity is a pervasive and systemic problem. Most show that nearly half of college and university students experience food insecurity (Breuning et al., 2017; Broton, 2020; Nazmi, 2019). As defined by the U.S. Department of Agriculture (USDA), food insecurity is the "limited or uncertain availability of nutritionally adequate and safe foods, or limited or uncertain ability to acquire acceptable foods in socially acceptable ways" (USDA Economic Research Service, 2022, para. 3). The experience of food insecurity, however, manifests in various ways for students, including the actuality of being hungry, not having enough food, consuming poor-quality food, rationing, embarrassment and stigma, and consistent worry and fear about accessing their next meal (Henry, 2020).

Beyond the moral imperative that students as human beings should have a right to food—which

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is what drives our and many efforts to investigate and address this problem (Broton, 2020)—students who experience food insecurity also experience interrelated wellbeing challenges that impede their ability to succeed and thrive in higher education and beyond. They are more likely to experience anxiety and depression, poorer physical health, low grades, attrition, and housing insecurity and homelessness than their food-secure peers (Dubick et al., 2016; Hattangadi et al., 2021; Maroto et al., 2015; Payne-Sturges et al., 2018; Silva et al., 2017). Moreover, research increasingly shows that historically marginalized and underrepresented populations of college and university students are inequitably at greater risk for experiencing food insecurity. Recent studies focus on whether students of color, first-generation students, students who are parents, international students, military-connected students, and LGBTQIA+ students disproportionately experience food insecurity (Goldrick-Rab et al., 2018; Henry, 2020; Savoie-Roskos et al., 2022; Schinkel et al., 2023; Wilcox et al., 2022). The COVID-19 pandemic has only exacerbated these challenges (Hagedorn et al., 2022).

Colleges and universities have responded by implementing strategies to address student food insecurity, many of which take the form of emergency or temporary support. Strategies include food pantries, meal swipe sharing, growing food on campus, recovering good food from events and dining centers, subsidized or at-cost grocery stores, and resources for accessing existing community and federal support (Anabel's Grocery, 2023; Cady, 2020; Crawford & Hindes, 2020; Duke-Benfield & Chu, 2020; Heffernan, 2018; Novak & Johnson, 2017; Oonorasak et al., 2022; U.S. Government Accountability Office, 2018). Student organizing has often played a key role in these strategies, both through individual campus-level and large-scale ef-

forts, such as Swipe Out Hunger and the National Student Campaign Against Hunger and Homelessness (Broton, 2020; Oonorasak et al., 2022; Sumekh, 2020).

The research exploring broader prevalence of student food insecurity, related outcomes, and ameliorating strategies within and across higher education institutions has surged in recent years (Broton & Cady, 2020; Hagedorn-Hatfield et al., 2022; Henry, 2020). During our own action research surrounding student food (in)security, however, we found that, while burgeoning in the literature, studies of the inequities described above and strategies to address them have received relatively less attention. Student-led strategies that would lend themselves to justice—those most affected by food insecurity having pivotal voice and agency over those strategies (Bradley & Herrera, 2015)—are similarly less explored. Other than studies and efforts focused on leveraging access to federal support programs for students, scholarship on non-emergency, systemic, and more radically transformative student food security strategies is, to our knowledge, nearly nonexistent.[1] Overall, student food (in)security has largely lacked the overt equity- and justice-based lenses more frequently applied to broader food security and systems scholarship and approaches (Cadieux & Slocum, 2015; Gotlieb & Joshi, 2011).

In this special section, we call for an explicit justice and equity approach to student food (in)security research and practice to better understand who is experiencing food insecurity and position those students' needs, priorities, and voices at the heart of strategies to address it. As the *Journal of Agriculture, Food Systems, and Community Development*'s inaugural special section sponsored by the Inter-institutional Network for Food, Agriculture and Sustainability (INFAS),[2] we drew inspiration di-

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[1] The California State University Basic Needs Initiative and its engagement of students as stakeholders in research and action is a notable exception, as a recently documented systemwide effort striving toward more transformative, scalable, and sustainable change (Maguire & Crutchfield, 2020; Woods-Bevly & Sanders, 2020).

[2] Hosted by the University of California, Davis, but spanning institutions, INFAS "connects food system scholars, educators, and action-researcher activists across the United States…to catalyze frontier work in food systems research, higher education, extension, and institutional change that we can achieve much better together than by working alone; increase our capacity to help build U.S. food system resilience, sustainability, and equity; raise visibility of research-based insights into food system problems and solutions, including increasing racial equity; diversify who is doing food systems work in academia and in action-focused research, education and extension" (INFAS, 2023, para. 1).

rectly from both JAFSCD's and INFAS's equity agendas and statements. These acknowledge and aim to equitably transform practices in privileged and powerful higher education institutions and enhance academics' capacity for food system justice and equity research and action around race, class, and gender oppression. Perhaps nowhere is it more in our purview—our responsibility, even—as academics to do this work than at home at our own colleges and universities, where we can ally with students and collaborate with other partners to make equity and justice "non-negotiable" principles of student food security (INFAS, 2022, para. 1; Porter et al., 2019).

Beyond these commitments, our own shared experience with student food (in)security action, research, and teaching through the University of Wyoming (UW) Student Food Security Taskforce most deeply inspired this special section. Formed and led by students in 2019, the taskforce includes students, staff, faculty, and, later, administrators, who have collaborated to uncover and address food insecurity at UW amid little previous institutional support for students experiencing food insecurity. As faculty members, both Rachael and Christine (who serve on JAFSCD's editorial board and in INFAS) supported the initial formation of the taskforce and its ongoing work through their sustainability and food justice project-based, experiential courses and their work mentoring student research and leadership. Caitlin was a founding taskforce student co-leader. Her lived experience with poverty and food insecurity has infused a justice stance throughout her leadership and has been integral to our taskforce work and the spirit of this special section. Together with numerous other members, we maintain a commitment to dignified, open access food sharing for all students (and staff members) while also exploring which groups of students disproportionately experience food insecurity and how to more equitably support them. Key to our work is that since its start, it has been *led by students,* from the bottom up.

With these statements and experiences in mind, we sought empirical and practical contributions on a range of equity and justice topics:

- expanding the literature on underlying factors contributing to student food insecurity and which groups of students disproportionately experience it;
- approaches for addressing student food insecurity that are explicitly equity-based for and with historically marginalized and underrepresented student populations; and
- student-led and other approaches that contribute to justice (e.g., novel, radical, and systemic, seeking to move beyond emergency support; dignity-based, sharing, and stigma-reducing).

Together, the six peer-reviewed articles and three edited practice briefs or essays featured in this section—and others that may be published after its initial launch—answer nearly every aspect of our call[3] to more explicitly center equity and justice in student food security in research and practice.

Several contributions add to the growing literature on which students disproportionately experience food insecurity according to demographic categories and identities. One study finds that food insecurity at the private Loyola University in Chicago surged during the COVID-19 pandemic and is significantly associated with socio-economic conditions, race and ethnicity, first-generation status, and sexual orientation (Rafferty et al., 2023). Another surveyed a representative sample of students at University of California, Davis to study the relationship between student food insecurity, resource use, and demographics. Findings show that transfer, first-generation, fourth-year, and Latino(a)/Chicano(a)/Hispanic students are more likely to experience food insecurity but do not uniformly access campus resources (Tanner et al., 2023). Both articles recommend targeted outreach and support strategies based on students' diverse

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[3] Only our request for contributions around community-university partnerships for addressing student food insecurity remained unanswered. We urge greater action and research in this area, as universities have an obligation to serve their own students and often have greater resources to do so than community partners—not to mention that such partnerships frequently present their own inequities around academic supremacy in research, teaching, and practice (Budowle et al., 2021; Porter & Wechsler, 2018).

identities and unique needs. Henry and student co-authors (2023) conducted an ethnographic inquiry into LGBTQIA+ students' experiences with food insecurity at the University of North Texas. Uncertain family support and stigma and discrimination around both food insecurity and their identities complicate their experiences of food insecurity and ability to access food relative to non-LGBTQIA+ students' experiences, requiring different and more inclusive support approaches.

Other pieces in this section provide insight into engaging students in identifying food security needs and implementing related strategies. Researchers at North Carolina State University engaged the campus community, including students, in participatory asset-mapping to identify and address underlying causes of food insecurity, including systemic inequalities, and center diverse voices for targeted approaches (Shisler et al., 2023). Brand (2023) describes engaging students through a course at the University of San Francisco in participatory action research as a justice-based methodology. Drawing on their experience and knowledge inspired students toward collective action and innovative approaches. Two practice briefs by DePorter et al. (2023) and Porter et al. (2023) detail concrete justice and equity strategies. The former describes a student-led Community Food Shed at the University of Wisconsin-Madison, which collects farm and grocery contributions in centralized refrigerators for stocking and distributing food to students, along with recommendations around barriers and strategies for doing so. In the latter brief, students in a project-based course in partnership with the UW Food Security Taskforce deliberately infused an equity approach into addressing student food insecurity. They formed a working group and held listening sessions with organizations and support units that serve LGBTQIA+, Native American, and international students who disproportionately experience food insecurity at UW to identify their priorities and targeted strategies and then share broader lessons learned.

In response to the novel and systems-level aspects of the section call, Evans & Roggio (2023) draw parallels between crises and inequities in the broader food system and the college campus in a reflective essay. They suggest that by profoundly restructuring college spending and retention practices; nutrition, food, and health education; and waste reduction and food sharing strategies, college campuses can serve as living laboratories to directly address these issues and inform broader food policy changes. Finally, drawing on research at Western Washington University, Darby et al. (2023) sharply distinguish between the general experience of college student food insecurity and its inequitable intersection with particular identities amid the neoliberalizaton of higher education. They reflect on their experiences with food security efforts on their campus, delineating between food access, justice, and sovereignty approaches. Sovereignty approaches may help resolve the unsustainability and inadequacy of traditional food access approaches by building and amplifying communities of support to better serve students who disproportionately experience food insecurity in relation to their identities.

These pieces join a nascent body of scholarship on equity and justice approaches to student food insecurity across the range of topics we put forth. When advertising this open call, however, we were struck by how many submissions conflated student food insecurity, generally—which is undoubtedly important to recognize and, again, morally imperative to address—with justice and equity, specifically. We commend the authors who corresponded with us, both those whose work appears and even some whose work does not ultimately appear in the special section, for grappling with and/or honing a justice and equity focus in their papers. The fact that practitioners and experts in this field initially found that focus to be somewhat elusive further demonstrates to us the pressing need to name, measure, and tackle the inequities and injustices in student food insecurity that manifest around class, gender, race, sexual orientation, and other demographic categories and gaps in centering students' voices. We hope this section advances such a research agenda and coalesces a community of practice around equitable, just, systemic, and transformative approaches to understanding and addressing student food (in)security.

References

Anabel's Grocery (2023). *About us.* Center for Transformative Action, Cornell University.
https://www.anabelsgrocery.org/about-us

Breuning, M., Argo, K., Payne-Sturges, D., & Laska, M. N. (2017). The struggle is real: A systematic review of food insecurity on postsecondary education campuses. *Journal of the Academy of Nutrition and Dietetics*, *117*(11), 1767–1791. https://doi.org/10.1016/j.jand.2017.05.022

Bradley, K., & Herrera, H. (2015). Decolonizing food justice: Naming, resisting, and researching colonizing forces in the movement. *Antipode*, *48*(1), 97–114. https://doi.org/10.1111/anti.12165

Brand, R. (2023). Students as co-researchers: Using participatory action research to address college food insecurity. Journal of Agriculture, Food Systems, and Community Development, *12*(2), 47–62. https://doi.org/10.5304/jafscd.2023.122.017

Broton, K. M. (2020). Food insecurity in higher education. In K. M. Broton & C. L. Cady (Eds.), *Food insecurity on campus: Action and intervention* (pp. 12–32), Johns Hopkins University Press.

Budowle, R., Krszjzaniek, E., & Taylor, C. (2021). Students as change agents for community–university sustainability transition partnerships. *Sustainability*, *13*(11), Article 6036. https://doi.org/10.3390/su13116036

Cadieux, K. V., & Slocum, R. (2015). What does it mean to do food justice? *Journal of Political Ecology, 22*(1), 1–26. https://doi.org/10.2458/v22i1.21076

Cady, C. L. (2020). If not us, who? Building national capacity to address student food insecurity through CUFBA. In K. M. Broton & C. L. Cady (Eds.), *Food insecurity on campus: Action and intervention* (pp. 33–53), Johns Hopkins University Press.

Crawford, S., & Hindes, N. (2020). The trampoline of public benefits: Using existing resources to fight food insecurity. In K. M. Broton & C. L. Cady (Eds.), *Food insecurity on campus: Action and intervention* (pp. 138–166). Johns Hopkins University Press.

Darby, K. J., Hemmer, L., Holt, R., Kempton, T., del Rosario, M., Stubblefield, J., & Webster, G. (2023). From food access to food sovereignty: Striving to meet university student needs. *Journal of Agriculture, Food Systems, and Community Development*, *12*(2), 97–117. https://doi.org/10.5304/jafscd.2023.122.020

DePorter, H., Moss, S., Puc, G. A., Ayalasomayajula, K., & Goldman, I. L. (2023). Campus Food Shed: Student-led efforts at UW-Madison to support food-insecure peers. *Journal of Agriculture, Food Systems, and Community Development*, *12*(2), 25–35. https://doi.org/10.5304/jafscd.2023.122.015

Evans, J. R., & Roggio, A. M. (2023). The college campus as a living laboratory for meaningful food system transformation. *Journal of Agriculture, Food Systems, and Community Development*, *12*(2), 11–23. https://doi.org/10.5304/jafscd.2023.122.014

Dubick, J., Matthews, B., & Cady, C. (2016). *Hunger on campus: The challenge of student food insecurity for college students.* College and University Food Bank Alliance, National Student Campaign Against Hunger and Homelessness, Student Government Resource Center, Student Public Interest Research Groups. http://studentsagainsthunger.org/wp-content/uploads/2016/10/Hunger_On_Campus.pdf

Duke-Benfield, A. E., & Chu, S. (2020). Addressing student hunger through policy change: Leveraging federal food benefits to support college completion. In K. M. Broton & C. L. Cady (Eds.), *Food insecurity on campus: Action and intervention* (pp. 240–264). Johns Hopkins University Press.

Goldrick-Rab, S., Richardson, J., Schneider, J., Hernandez, A., & Cady, C. (2018). *Still hungry and homeless in college.* Hope Center for College, Community, and Justice, Temple University. https://ighhub.org/resource/still-hungry-and-homeless-college

Hagedorn-Hatfield, R. L., Hood, L. B., & Hege A. (2022). A decade of college student hunger: What we know and where we need to go. *Frontiers in Public Health*, *10*, Article 837724. https://doi.org/10.3389/fpubh.2022.837724

Hagedorn, R. L., Walker, A. E., Wattick, R. A., & Olfert, M. D. (2022). Newly food-insecure college students in Appalachia during the COVID-19 pandemic. *Journal of Nutrition Education and Behavior*, *54*(3), 202–210. https://doi.org/10.1016/J.JNEB.2021.08.010

Hattangadi, N., Vogel, E., Carroll, L. J., & Côté, P. (2021). Is food insecurity associated with psychological distress in undergraduate university students? A cross sectional study. *Journal of Hunger & Environmental Nutrition, 16*(1), 133–148. https://doi.org/10.1080/19320248.2019.1658679

Heffernan, M. (2018, December 8). University of Arizona rooftop greenhouse helps feed students, staff in need. *Arizona Daily Star.* https://tucson.com/news/university-of-arizona-rooftop-greenhouse-helps-feed-students-staff-in/article_8c46c1a5-8ef2-5a21-b357-0f1c1286c69a.html

Henry, L. (2020). *Experiences of hunger and food insecurity in college.* Palgrave Macmillan.

Henry, L., Ellis, D., Ellis, S., Fleck, M. J., Migdol, S., Rodriguez, N., Delgado, V., Esmonde, S., Islam, M. I., Kazaoka, K., Sun, W., & Tajallipour, P. (2023). Experiences of food insecurity among LGBTQIA+ college students in North Texas: Meaning, experiences, and recommendations for inclusive solutions. *Journal of Agriculture, Food Systems, and Community Development*, *12*(2), 119–134. https://doi.org/10.5304/jafscd.2023.122.021

Inter-institutional Network for Food, Agriculture, and Sustainability [INFAS]. (2022). *INFAS statement on equity in the food system.* Agricultural Sustainability Institute, University of California at Davis. https://asi.ucdavis.edu/programs/infas/about/infas-statement-on-equity-in-the-food-system

Inter-institutional Network for Food, Agriculture and Sustainability [INFAS]. (2023). *Inter-institutional Network for Food, Agriculture, and Sustainability (INFAS).* https://asi.ucdavis.edu/programs/infas

Maguire, J. J., & Crutchfield, R. M. (2020). Research as a catalyst for positive systemic change. In K. M. Broton & C. L. Cady (Eds.), *Food insecurity on campus: Action and intervention* (pp. 191–221). Johns Hopkins University Press.

Maroto, M. E., Snelling, A., & Linck, H. (2015). Food insecurity among community college students: Prevalence and association with grade point average. *Community College Journal of Research and Practice, 39*(6), 515–526. https://doi.org/10.1080/10668926.2013.850758

Nazmi, A., Martinez, S., Byrd, A., Robinson, D., Bianco, S., Maguire, J., Crutchfield, R. M., Condron, K., & Ritchie, L. (2019). A systematic review of food insecurity among US students in higher education. *Journal of Hunger & Environmental Nutrition, 14*(5), 725–740. https://doi.org/10.1080/19320248.2018.1484316

Novak, H., & Johnson, J. (2017). Students against hunger: An approach to food insecurity at a large public land grant university. *Journal of Student Affairs*, *26*, 99–110. https://sahe.colostate.edu/wp-content/uploads/sites/10/2017/04/csu304611-SAHE-journal-2017-www.pdf

Oonorasak, K., Barr, M., Pennell, M., Hinton, J., Garner, J., Kerber, C., Ritter, C., Dixon, L., Rohde, C., & Stephenson, T. J. (2022). Evaluation of a sustainable student-led initiative on a college campus addressing food waste and food insecurity. *Journal of Agriculture, Food Systems, and Community Development*, *11*(4), 223–237. https://doi.org/10.5304/jafscd.2022.114.014

Payne-Sturges, D. C., Tjaden, A., Caldeira, K. M., Vincent, K. B., & Arria, A. M. (2018). Student hunger on campus: Food insecurity among college students and implications for academic institutions. *American Journal of Health Promotion*, *32*(2), 349–354. https://doi.org/10.1177/0890117117719620

Porter, C. M., Grimm, K., & Budowle, R. (2023). Narrowing the equity gap in student food security: A student-led approach at the University of Wyoming. *Journal of Agriculture, Food Systems, and Community Development*, *12*(2), 37–45. https://doi.org/10.5304/jafscd.2023.122.016

Porter, C., Lunford, L., Williams, K., Pothukuchi, K., Farmer, J., Christian, A., & Hilchey, D. (2019). Equity agenda. *Journal of Agriculture, Food Systems, and Community Development* website, Thomas A. Lyson Center for Civic Agriculture and Food Systems. https://www.foodsystemsjournal.org/index.php/fsj/equity-agenda

Porter, C. M., & Wechsler, A. (2018). Follow the money: Resource allocation and academic supremacy among community and university partners in Food Dignity. *Journal of Agriculture, Food Systems, and Community Development*, *8*(Suppl. 1), 63–82. https://doi.org/10.5304/jafscd.2018.08A.006

Rafferty, F., Schusler, T., & Valencia Mestre, M. C. (2023). College student food security during the COVID-19 pandemic. *Journal of Agriculture, Food Systems, and Community Development*, *12*(2), 79–96. https://doi.org/10.5304/jafscd.2023.122.019

Savoie-Roskos, M. R., Hood, L. B., Hagedorn-Hatfield, R. L., Landry, M. J., Patton-López, M. M., Richards, R., Vogelzang, J. L., Qamar, Z., OonNorasak, K., & Mann, G. (2023). Creating a culture that supports food security and health equity at higher education institutions. *Public Health Nutrition*, *26*(3), 503–509. https://doi.org/10.1017/S1368980022002294

Schinkel, K. R., Budowle, R., Porter, C. M., Dai, B., Gifford, C., & Keith, J. F. (2023). Service, scholarship, and sacrifice: A qualitative analysis of food security barriers and strategies among military-connected students. *Journal of the Academy of Nutrition and Dietetics, 123*(3), 454–465. https://doi.org/10.1016/J.JAND.2022.07.002

Shisler, R., Cordero Oceguera, E., Hardison-Moody, A., & Bowen, S. (2023). Addressing and preventing food and housing insecurity among college students: An asset-based approach. *Journal of Agriculture, Food Systems, and Community Development*, *12*(2), 135–153. https://doi.org/10.5304/jafscd.2023.122.022

Silva, M. R., Kleinert, W. L., Sheppard, A. V., Cantrell, K. A., Freeman-Coppadge, D. J., Tsoy, E., Roberts, T., & Pearrow, M. (2017). The relationship between food security, housing stability, and school performance among college students in an urban university. *Journal of College Student Retention: Research, Theory & Practice, 19*(3), 284–299. https://doi.org/10.1177/1521025115621918

Sumekh, R. (2020). Student action and nonprofit partnership: The Swipe Out Hunger story. In K. M. Broton & C. L. Cady (Eds.), *Food insecurity on campus: Action and intervention* (pp. 115–137), Johns Hopkins University Press.

Tanner, Z. R., Loofbourrow, B. M., Chodur, G. M., Kemp, L, & Scherr, R. E. (2023). Food insecurity and utilization of campus food resources differ by demographic and academic group. *Journal of Agriculture, Food Systems, and Community Development*, *12*(2), 63–78. https://doi.org/10.5304/jafscd.2023.122.018

U.S. Department of Agriculture Economic Research Service [USDA ERS]. (2022). *Food security in the U.S.: Measurement.* https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/measurement

U.S. Government Accountability Office. (2018). *Food insecurity: Better information could help eligible college students access federal food assistance benefits* (GAO-19-95). https://www.gao.gov/products/gao-19-95

Wilcox, M., Baker, C., Burish, E., Arnold, R., Cherry, M., & Moss, T. (2022). Inequitable hunger: Scope, effects, and perceptions of college student food insecurity. *Journal of Student Affairs Research and Practice*, *59*(4), 385–400. https://doi.org/10.1080/19496591.2021.1960851

Woods-Bevly, D., & Sanders, S. (2020). Transformational change for student success: The California State University Basic Needs Initiative. In K. M. Broton & C. L. Cady (Eds.), *Food insecurity on campus: Action and intervention* (pp. 167–190), Johns Hopkins University Press.

Commentary for the Special Section:
Justice and Equity Approaches to College and University Student Food (In)Security

SPECIAL SECTION SPONSORED BY

The college campus as a living laboratory for meaningful food system transformation

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Abstract

As has become abundantly clear to the social scientists, agriculturalists, policymakers, and food justice advocates who have taken up the fight, progress toward more resilient, fair, and effective food systems is hard fought and prone to challenges. Vexingly, the competing goals of food system improvement even make defining "success" in food system transformation difficult: accessible, affordable food versus nutritious food; diversity in the agricultural economy versus the cost savings of consolidation; and consumer choice and variety versus the ecological advantages of eating seasonally and locally.

In this commentary, we treat American college campuses as analogs of the larger food system and as such, laboratories[1] for study of these systemic tradeoffs and proving grounds for policy interventions. We argue that the lived context of college students approximates that of communities in which financial, logistical, and other challenges negatively affect nutrition, equitable food access, and food knowledge outcomes. We suggest that the rigorous assessment of changes in educational philosophy, management practices, and spending priorities on campuses may offer insight into the ways in which we might effect change throughout the broad national food landscape, to facilitate the transition to more equitable and just food systems.

Keywords

Food System, Food Insecurity, Food Justice, Food Equality, College Campus, Student Retention, Food Waste

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[1] Our propositions here connect more broadly with the literature examining the campus as a living laboratory, which addresses a wide array of sustainability issues (e.g., Gomez & Derr, 2021; Hansen, 2017; Save et al., 2021).

The U.S. Food System: A Snapshot

Although recognized globally for its productivity and technical efficiency, the U.S. food system fails on a number of fronts. The stressors of modern living paired with persistently low wages force many households to grapple with the tradeoffs between affordable, calorie-dense, heavily processed convenience foods and more expensive fresh foods that require both preparation and cook time (Patel, 2012). The demand for cheap food calls for a production system that relies on similarly low-cost agricultural inputs that generate severe ecological and human health outputs, including substantial food waste (Carolan, 2018)—what Benton and Bailey (2019) call the "paradox of productivity." The population of farmers is aging, and many who are experimenting with nonconventional food production strategies, from agroecology to community supported agriculture (CSA), are not profitable enough to secure a living wage (Paul, 2019). And rapid, rampant consolidation has rendered the group of American food producers and manufacturers who actually put food on consumers' tables shockingly small and fragile (MacDonald et al., 2018).

Manifestly, we are nutritionally deficient (Liu et al., 2020, 2021). Our rural communities lack adequate health care (Coughlin et al., 2019) and equal access to job opportunities (Devaraj et al., 2020). Industrialized soil nutrients poison watersheds (Glibert, 2020; Lintern et al., 2020), food-related disease plagues the poor and marginalized (Belanger et al., 2020; Kris-Etherton et al., 2020), and the impact of eating behaviors on every part of our physical, cognitive, and emotional being is often peripheral to consumer budgetary and convenience considerations (Dhakal & Khadka, 2021).

While the COVID-19 pandemic temporarily disrupted supply chains, the time, energy, and money required to access food has historically been relatively low for the average American consumer compared to the rest of the world. Grocery stores across the country abound with an unimaginable variety of safe and convenient food and beverage options. However, the costs imposed on society by food system failures—like exorbitant health care costs, distressed rural communities, and damaged ecosystems—seem too far removed, too global, to

warrant individual behavioral change or clamor for political action (Béné et al., 2019; Fanzo et al., 2020). Domestic food policy has attempted reform with debatable success. Farm bill–funded conservation programs, the Supplemental Nutrition Assistance Program (SNAP), and grant programs for diversifying farm operations and agricultural markets have had a measurable impact on system outcomes (Cox, 2006; Ratcliffe & McKernan, 2010). Nearly 90% of U.S. households are classified as food secure (U.S. Department of Agriculture Economic Research Service [USDA ERS], 2022), millions of highly erodible acres have been removed from production (USDA Farm Service Agency [USDA FSA], 2022) and there are opportunities for even the smallest farm operations to earn a living (Rupasingha & Pender, 2018).

Yet, this progress masks a myriad of underlying and worsening food system crises that have disproportionately impacted people of color (Islami et al., 2021; Paradies, 2006; Simons et al., 2018) and of lower socioeconomic strata (Liu et al., 2023; Vineis et al., 2020). Real transformation would show itself as more equitable health outcomes across racial and economic strata, visible changes in how agricultural land is used to feed people, and access to healthy food across all income levels. School systems, from elementary to postgraduate, would be imbued with the capacity and knowledge to nurture lifelong healthy eating habits. The scale and diversity of food processing and distribution infrastructure across the country would preclude outright supply chain failures. And a greater connection between nutrition outcomes and agricultural support programs in the U.S. would be apparent in policy related to sustainable economic development (Lang & Barling, 2013). This, alas, is not our reality. And, these issues have parallels on American college campuses that are significantly affecting student success.

Food and Today's College Students

As college education has become more egalitarian, the socioeconomic diversity of students on America's campuses has broadened (U.S. Government Accounting Office, 2018). Concurrently, as the academy has shifted its goals to align with neoliberal values of revenue generation, productivity, and

efficiency, the student has increasingly become a customer, purchasing a degree (Astin & Oseguera, 2004; Saunders, 2010). Iterative cycles of expanded availability of federal and other grant and loan programs, including expansion to older students and those with increased risk profiles, were followed by the expansion of academic programs and delivery modalities designed to meet the needs of the increasingly diverse higher education marketplace (Looney & Yannelis, 2022). One clear outcome of efforts to advance access and redraft the purpose of higher education has been a surge of older students, employed students, and students with children; according to the National Center for Educational Statistics, "nontraditional students" now make up a majority of students enrolled in college classrooms, and they require different services as they are frequently balancing jobs, families, and school (MacDonald, 2018; NCES, 2016).

Institutions of higher education have shifted toward supporting greater access and have redefined their goals to better respond to priorities involving the information and knowledge economy (Olssen & Peters, 2005; Peters & Humes, 2003; Temple, 2012; Wright & Shore, 2017). Accordingly, the cost of attending college has risen exponentially, leaving massive education debt and large numbers of cash-strapped students in its wake (Hemelt & Marcotte, 2011). Although there is some debate over how to rank the factors that have led to higher college costs,[2] we argue, based on the changes illustrated above, that students now enrolling are functionally different—and require different services, including a greater emphasis on housing and food security challenges—than those of previous generations. Many argue that today's student is less prepared for the academic and personal rigors of college, demands more individual attention, is less self-reliant and, as noted above, may come from households experiencing financial stress, work a full-time job while going to school, or be raising children. The pandemic has only exacerbated those challenges (Becker, 2021; Denizet-

Lewis, 2017; Malesic, 2022; McMurtrie, 2022; Peltz et al., 2021). The college campuses of much of the 20th century had few staff and resources devoted to student mental health and counseling, retention, accommodation, and freshman transition; certainly, there were no on-campus food pantries or emergency funds for students going hungry. On the other hand, Goldrick-Rab (2018) argues that many of the services that previously supported students through obtaining a four-year degree are no longer providing adequate assistance, including safety-net programs such as SNAP and federal work-study programs designed to reduce the cost of attending college.

In short, our well-intentioned attempt to make college accessible to all has also contributed to conditions that make successfully completing a degree more challenging for many. From a systems perspective, this scenario was painfully predictable; we have enabled more people to go to college—indeed, made college a cultural requirement for adulthood—without also providing the conditions for success.

In recent years, research has unveiled a new and somewhat unexpected dimension of food system failure: food insecurity on American college and university campuses (Nazmi et al., 2019). Underlying society-wide problems related to household income, food costs, and access to food have collided with the aforementioned college affordability concerns and a cultural misperception of college as the indispensable ticket to the American dream. In effect, food insecurity among college students is at the center of a bleak Venn diagram of the food system, education system, and cultural predicaments.

Specifically with regard to student food insecurity, several culprits are easy to identify. College students are often transportation-limited or otherwise have inadequate access to a wide variety of food offerings. Decisions about what might be available to them on campus are made by budget-driven foodservice managers who, like food manu-

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[2] Suggested factors include the debated "Baumol Effect" on faculty salaries, state funding cuts, bloated academic administration, and excess infrastructure capacity caused by the Baby Boom surge in campus construction. The Baumol effect refers to the rise of wages in jobs that have experienced little or no increase in labor productivity, in response to rising salaries in other jobs that have experienced higher productivity growth (Nose, 2015; Thille & Smith, 2010).

facturers and retailers, are adept at catering to calorie-hungry, "bang for the buck" consumers. The same consolidation and market power that define food processing, distribution, and retailing also describe the foodservice management sector, limiting campus foodservice directors' choice of dining contractors to a scant few (Kelloway, 2018).

Certainly, fresh, raw ingredients for cooking are not ubiquitous on college campuses, as most on-campus living does not include cooking appliances or sufficient refrigerated storage. Even if residence halls across the country were outfitted with such amenities, incoming college students may lack food literacy and the time, skills, and resources for utilizing them. And, ultimately, real or perceived differences in prices between fresh, healthy diets and those laden with high-calorie, heavily processed foods may preclude already time- and money-pinched people from preparing food regularly. Moreover, research has concluded that some students are more at risk of food insecurity than others, particularly Black and Hispanic students (Bruening et al., 2016; El Zein et al., 2019), those employed but low-income (Freudenberg et al., 2013; Patton-López et al., 2014), and those receiving financial aid (Adamovic et al., 2020; Payne-Sturges et al., 2018). Many of the same students are also housing insecure (Adamovic et al., 2020).

While scholarship has leaned methodologically on case study research to identify significantly higher rates of food insecurity on college campuses than in the general population, Gundersen (2021) has injected some uncertainty into the conversation, arguing that different methods find very different results. In fact, Gunderson (2021) finds that for the 18–30 age group, nonstudents are significantly more likely to experience food insecurity, and that college students enjoy rates, on average, below that of the general population. This uncertainty calls for more rigorous assessment of the socioeconomic realities of college students. If college life now mirrors the rest of society more than ever (vast socioeconomic disparity, rising costs of living, mounting daily stressors of balancing financial concerns with work, family, and study), we stand to learn a lot about the larger food system by treating campuses as microcommunities—and analogs—thereof. Policy and other interventions aimed at

solving problems like food insecurity (and other forms of resource scarcity) in academic communities might be applicable outside campus walls and to broader food system challenges.

We suggest that campus-level changes in educational philosophy, management practices, and spending priorities may yield important outcomes, such as improved lifelong nutrition and wellness, especially crucial for those now affected by food security inequalities. Radical food systems transformation, so far, has been out of reach for the U.S.; we submit that addressing food systems issues on the level of the college campus might be a step toward realizing that transformation. Below, we outline three campus-level intervention areas that deserve longitudinal empirical analysis to determine their effectiveness when dispersed across different campuses, regions, and populations.

A Fundamental Reconsideration of Campus Spending Priorities

College administrators have raised student retention to a top strategic priority for the last 10 years (Hanover Research, 2014). With waning pools of prospective 18-year-olds in many parts of the country, enrollment managers argue that it is cheaper and easier to keep a current student than to find a new one (Fain, 2014; Ferguson, 2021). Implementation of "free" community college models will likely only reinforce this calculus as available prospective students flock to their lowest-cost options; 67% of respondents in a recent survey, for example, suggest that lowest-cost options are a very high priority for students, and particularly for families who are struggling (U.S. Department of Education, 2018).

Retention efforts on most campuses take the form of new campus services or enhanced, high-engagement faculty advising models (Basko, 2021). The logic is that if we surround students with a support network standing ready to address campus life, with its residential, financial, and academic conundrums, students will persist. If we throw in the occasional social activity such as a concert, paint-n-sip or food truck soirée, students will not only persist but will graduate, having climbed the rungs of Maslow's hierarchy of needs.

Of course, there are instances in which this

strategy works and students at risk of withdrawing from college eventually graduate because of multi-faceted (and creative) intervention. However, if campus food-insecurity rates are as high across the country as nascent research indicates (Mason, 2023), and overall student mental and emotional health challenges continue to be widespread and alarming (Marijolovic, 2023), these approaches to student satisfaction and retention will be far from adequate. Rarely will a faculty advisor or campus counselor be able to effectively walk a student back from feeling that their basic physiological, security, and esteem needs are unmet when, in fact, these needs are not being met.

The empirical link between food security and persistence in college is well established (Wolfson et al., 2021). We firmly support ongoing investigations aimed at identifying additional causal relationships, while insisting that current circumstances suggest that resources devoted to college retention efforts should at least in part be directed to making sure that every student has access to food. Should *all* matriculated students have access to on-campus food options at no charge, for example? Would lost revenue from dining operations be made up in higher retention rates and higher student achievement? Furthermore, there has been a proliferation of research addressing potential benefits of "free college," most notably focused on the state-level "promise programs" now found acoss the country (Nguyen, 2020; Perna & Leigh, 2018). Scholars generally conclude that rates of student enrollment rise when there is access to financial support programs (Swanson et al., 2016). Regardless of whether these programs proliferate, we do know that there is a serious but not insolvable mismatch between eligibility for public support programs and requirements for student financial aid (Duke-Ben-field & Sponsler, 2019). Assuring better access to SNAP, Temporary Assistance to Needy Families (TANF), and childcare programs for students would certainly alleviate some of the burden of the high cost of college. The degree to which higher education can integrate discounted tuition initiatives and better use of public-sector assistance programs with a campus ethic that demands that everyone have access to food, regardless of their ability to pay, remains stubbornly uncertain, but

promising. These are important research questions, and there is an increasing need to clarify how particular interventions—from campus foodservice spending policies to the package of services and amenities offered on campus—affect rates of campus food insecurity and whether their effectiveness demands mirroring in the wider food system as changed public spending policies, particularly in food-security support programs (Burrows et al., 2017; Davis et al., 2021; Martinez et al., 2019; Sogari et al., 2018). Moreover, making sure everyone has enough to eat is, without debate, the right thing to do.

To go a step further, there is plenty of evidence that access not just to food but *healthy* food engenders higher student performance (Reuter & Forster, 2021; Weigel Health Center, 2018; Wilder Research, 2014). At one author's (Evans) institution, Johnson & Wales University, long noted for its culinary arts and food service programs, world-class chefs and their students are working directly with dining services to redesign dining hall offerings to meet strict nutritional standards while preserving flavor and flare. Foodservice management companies and independently operated campus auxiliary services might consider new investment in culinary nutrition or chef professionals, and perhaps internship opportunities with area culinary arts programs, to achieve the same outcomes. Princeton University's (2019) "Vision for the Future of Dining" represents another example of an institution merging nutrition security and food access with high quality. Again, research should engage around these initiatives to test, for example, whether greater access to nutrition on campuses leads to healthier students and to higher graduation rates. Research inquiries should also aim to test whether the relative costs and benefits of these approaches align with modern campus budget realities.

If changes in campus spending and investment practices around food on college campuses generate healthier students, more graduates, and more effective retention programming budgets, policymakers in the larger food system should take note. Could fundamental changes to the way in which food is subsidized for food-insecure households more than pay for themselves with savings in men-

tal health and healthcare services, and gains in economic output? Though our modern political system rarely exhibits an appetite for programs with immediate costs but delayed benefits, irrefutable evidence from college campuses that approximate the larger economy and food system might be an important catalyst to holistic political change.

Reimagining Foundational Educational Programming

In tandem with (and sometimes as a key component of) retention programming, colleges are increasingly offering "first year seminar" and similar compulsory courses aimed at transitioning freshmen to the campus community. Some of these programs at least peripherally connect the importance of nutrition and physical activity to classroom performance, such as the Nutrition and Healthy Living certificate program at Cornell University (2023), the integration of "teaching kitchen" programming in various residential colleges (Eisenberg et al., 2019), and the First Year Seminar in Nutritional Sciences at Penn State University (2023). Still, food and nutrition have long played second fiddle to discussion of the dangers of alcohol and drug consumption. Furthermore, while students on most campuses are able to take "human nutrition" or food-related classes as liberal arts electives, required courses that address the lifelong connection between food and health, and provide students with resources for developing healthier habits, including tailored nutritionist, dietician, and trainer intervention, are rare (Cousineau et al., 2006; Tallant, 2017).

In the face of breakdowns in modern healthcare and mental health systems, evidenced by the increasing rates of youth depression, anxiety, and suicide (Twenge et al., 2019), and considering the apparent failure of college campuses to deliver ample nutrition to students, is it time to consider nutrition and health programming as *essential* to an undergraduate experience, just as we now consider "freshman transition" inclusive of content areas such as composition, math, and biology? To be effective, this programming likely cannot be delivered in a traditional, passive fashion; instead, one-on-one student nutrition consultations and campus dining offerings must support the core concepts.

We do not propose that this will be a cheap endeavor. But, as with fundamentally different approaches to feeding students on campus, these programs would facilitate powerful research opportunities. We could track not only the implications of explicit, applied nutrition programming for student learning and graduation outcomes but also longitudinal postgraduation life habits, with meaningful extensions to, and implications for, the broader food system.

In particular, campus-level educational programming that is effective in altering food choices and improving nutritional outcomes could inform local, state, and federal policy for the kindergarten-through-twelfth-grade (K-12) sector, where eating habits become entrenched. Nearly 20 years of USDA-funded farm to school educational programming in the K-12 sector shows that incorporating agricultural literacy and food production experiences into health and nutrition programming can enhance positive outcomes related to food choices (Joshi et al., 2008; Prescott et al., 2020). As such, research on creative food educational approaches on college campuses should extend to the impact of campus gardens, agricultural applications in STEM programs, and formal food systems curricula on student nutrition, engagement and performance outcomes. Indirectly, using agriculture as a vehicle for teaching core science, technology, and engineering concepts may engender positive outcomes in the swiftly changing demographic and technological landscape of American farming, illuminating agriculture as a viable career track for students of any major or discipline.

Student engagement remains a key component of this work; all programmatic interventions are mediated by the degree to which higher education can reach students. Porter (2018) and Ventura and Bailey (2017) have eloquently noted the importance of understanding the role of co-investigators: while our research participants are often eager to work alongside us *to study* the problem, they do not want *to be studied*. In our experience as educators and as research directors leading undergraduate and graduate teams, we find that this is likely true of students as well. Therefore, while we propose using the university as a unique laboratory to explore food systems opportunities, we also hypothesize

that the effectiveness of solutions is determined by the degree to which they are co-produced; the stronger the degree of collaborative student/faculty research, the greater the likelihood of finding solutions that will disperse beyond the academy (Amparo et al., 2022). And, for these complex inquiries, it will be especially important to engage the voices of food-insecure and otherwise marginalized students in the design of research and solutions.

More Explicit, Better Funded Approaches to Mitigating Food Waste

That somewhere between 30% and 40% of food produced in the U.S. is wasted is well-documented (Birney et al., 2017; Buzby et al., 2014; Cuéllar & Webber, 2010) and largely indefensible, considering the federal, state, and nonprofit resources devoted yearly to feeding food-insecure households. Though many private and nonprofit organizations have made commitments to reducing waste at the field, distribution, and retail stages of the marketing channel, and the EPA and USDA have established nationwide waste mitigation goals, food waste remains an enduring problem (Horton et al., 2019; Isenhour et al., 2022; Van Bemmel & Parizeau, 2020). Colleges and universities also have a history of engagement with this issue. For example, Rhode Island University spearheads a program that recovers food from campus dining halls and distributes it to community food pantries (Siliezar, 2018). The national Campus Kitchens Project continues to successfully divert surplus food from campus facilities to community-based organizations (Himmelheber, 2016). Notably, efforts to address campus food waste also tend simultaneously to offer student opportunities for engagement, thereby creating the type of co-produced outcomes discussed above (Picardy et al., 2021).

Still, designing and sustaining these programs is complicated. As any farmer would attest, prevention of waste at the point of production is costly, as it requires secondary harvests, new markets or buyers, and/or economical access to processing infrastructure (Baker et al., 2019; Johnson et al., 2018). Foodservice managers would attest to the same, as food safety protocols, labor, and storage required for repurposing unused meals and ingredients is cost-prohibitive for most organizations (Munir,

2022). Furthermore, most campus-centered research has focused on efforts to divert waste from campus dining facilities into the broader community (Alattar & Morse, 2021; Rajan et al., 2018; Wilkie et al., 2015). Room remains to divert good food to students experiencing food insecurity and to conduct further research on those efforts. At Johnson & Wales University, a recently launched student organization, Wildcat Food Rescue, has taken charge of food waste mitigation and recovery efforts in the culinary arts laboratories and select campus dining halls. Surplus food is collected, labeled and stored by students daily, repacked into ready-to-heat meals, and distributed weekly at no charge to students. Although the initiative does not specifically target food-insecure students, these students likely make up at least a portion of the audience at pick-up each week. This effort requires substantial student support and faculty oversight, as well as refrigerated storage and packaging. As such, it exemplifies the challenges that any foodservice organization would face in fully tackling the food waste issue, particularly in a way that mitigates food insecurity. Continual assessment of the Wildcat Food Rescue program will be required to measure the extent to which—and the cost of which—food waste reduction alleviates on-campus food insecurity incidence.

Any measurable change in the U.S. food waste crisis will require the support of private and public organizations in the foodservice trenches. Through funding efforts aimed at improving processing, storage and distribution infrastructure, federal and state governments could directly assist food system actors in food recovery efforts that redirect would-be waste to processors and ultimately food-insecure consumers, not only colleges and universities but also K-12 school districts stymied by limited food budgets. As we suggest throughout this essay, college campuses should be used as proving grounds for the effectiveness of foodservice management strategies, food safety protocol, capital investments, novel food and beverage products, and educational programming that mitigates waste in the hopes that extensions to the larger food system are possible.

Even before the impact of the pandemic, food, in a myriad of problematized ways, was moving up

policy agendas. Food insecurity, the vulnerability of aging American food systems infrastructure, and the entrenched complexity of the food-climate nexus necessitate a revisioning of all aspects of food production, distribution, consumption, and waste management. The college campus faces internal complexities of its own, not the least of which are balancing rising costs and shifting cultural reinterpretations of education's value with an increasingly diverse and financially pressed student population. While we are hesitant to imply that any of these stressful situations be portrayed as opportunities, we should be strategic and open-minded in viewing the college campus as an analog to the larger food system. As the example of Johnson & Wales University shows, campuses have much to offer as test sites for policy, investment, and management interventions that facilitate net improvements to food-related outcomes and ultimately, quality of life.

This work of drawing upon successful campus-level policy and investment strategies to formulate novel approaches to complex food system challenges should begin with case study analyses of progressive spending, educational programming, and food waste mitigation interventions happening now at colleges and universities around the country. Although it will take time to understand empirically the impacts of these interventions on physical and mental health, persistence, food literacy, food insecurity, equity, and sustainability (economic, ecological, and otherwise), we propose and invite a research agenda that collaboratively engages a diverse set of campuses as living laboratories for innovative solutions to food system crises.

For the sake of our students, and with the hope that we may uncover insights into radical transformation within our wider food system, we consider this a vital, and unmissable, opportunity.

References

Adamovic, E., Newton, P., & House, V. (2020). Food insecurity on a college campus: Prevalence, determinants, and solutions. *Journal of American College Health*, *70*(1), 58–64. https://doi.org/10.1080/07448481.2020.1725019

Amparo, J. M. S., Pulumbarit, C. C., Malenab, M. C. T., Dangcalan, R. J. P., Mendoza, M. E. T., Visco, E. S., & Jimena, C. E. G. (2022). Engaged scholarship and co-production: The role of higher education institutions in urban sustainability—A Pacific Rim perspective. In Y. Tang & A. Toufen (Eds.), *The Routledge handbook of sustainable cities and landscapes in the Pacific Rim* (pp. 780–793). Routledge. https://doi.org/10.4324/9781003033530-66

Astin, A. W., & Oseguera, L. (2004). The declining "equity" of American higher education. *The Review of Higher Education*, *27*(3), 321–341. https://doi.org/10.1353/rhe.2004.0001

Baker, G. A., Gray, L. C., Harwood, M. J., Osland, T. J., & Tooley, J. B. C. (2019). On-farm food loss in northern and central California: Results of field survey measurements. *Resources, Conservation and Recycling, 149*, 541–549. https://doi.org/10.1016/j.resconrec.2019.03.022

Basko, A. (2021). Have we gotten student success completely backward? *The Chronicle of Higher Education, 68*(8). https://www.chronicle.com/article/have-we-gotten-student-success-completely-backward

Becker, M. S. (2021). Educators are key in protecting student mental health during the COVID-19 pandemic. *Brown Center Chalkboard*. https://www.brookings.edu/blog/brown-center-chalkboard/2021/02/24/educators-are-key-in-protecting-student-mental-health-during-the-covid-19-pandemic/

Belanger, M. J., Hill, M. A., Angelidi, A. M., Dalamaga, M., Sowers, J. R., & Mantzoros, C. S. (2020). Covid-19 and disparities in nutrition and obesity [Perspective]. *New England Journal of Medicine*, *383*(11), Article e69. https://doi.org/10.1056/NEJMp2021264

Béné, C., Oosterveer, P., Lamotte, L., Brouwer, I. D., de Haan, S., Prager, S. D., Talsma, E. F., & Khoury, C. K. (2019). When food systems meet sustainability—Current narratives and implications for actions. *World Development*, *113*, 116–130. https://doi.org/10.1016/j.worlddev.2018.08.011

Benton T. G., & Bailey R. (2019). The paradox of productivity: Agricultural productivity promotes food system inefficiency. *Global Sustainability 2*, Article e6. https://doi.org/10.1017/sus.2019.3

Birney, C. I., Franklin, K. F., Davidson, F. T., & Webber, M. E. (2017). An assessment of individual foodprints attributed to diets and food waste in the United States. *Environmental Research Letters*, *12*(10), Article 105008. https://doi.org/10.1088/1748-9326/aa8494

Bruening, M., Brennhofer, S., Van Woerden, I., Todd, M., & Laska, M. (2016). Factors related to the high rates of food insecurity among diverse, urban college freshmen. *Journal of the Academy of Nutrition and Dietetics*, *116*(9), 1450−1457. https://doi.org/10.1016/j.jand.2016.04.004

Burrows, T. L., Whatnall, M. C., Patterson, A. J., & Hutchesson, M. J. Associations between dietary intake and academic achievement in college students: A systematic review. *Healthcare*, *5*(4), 60. https://doi.org/10.3390/healthcare5040060

Buzby, J. C., Wells, H. F., & Hyman, J. (2014). *The estimated amount, value, and calories of postharvest food losses at the retail and consumer levels in the United States* (EIB-121). Economic Research Service, U.S. Department of Agriculture. https://www.ers.usda.gov/publications/pub-details/?pubid=43836

Carolan, M. (2018). *The real cost of cheap food* (2nd ed.). Routledge. https://doi.org/10.4324/9781315113234

Cornell University. (2023). *Nutrition and the digestive system* [Online course]. https://ecornell.cornell.edu/courses/nutrition/nutrition-and-the-digestive-system/

Coughlin, S. S., Clary, C., Johnson, J. A., Berman, A., Heboyan, V., Benevides, T., Moore, J., & George, V. (2019). Continuing challenges in rural health in the United States. *Journal of Environment and Health Sciences*, *5*(2), 90−92. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7043306/

Cousineau, T. M., Franko, D. L., Ciccazzo, M., Goldstein, M., & Rosenthal, E. (2006). Web-based nutrition education for college students: Is it feasible? *Evaluation and Program Planning, 29*(1), 23−33. https://doi.org/10.1016/j.evalprogplan.2005.04.018

Cox, C. (2006). U.S. agriculture conservation policy and programs: History, trends, and implications. 3. In K. Arha, T. Josling, D. A. Summer, & B. H. Thompson (Eds). *U.S. agricultural policy and the 2007 farm bill* (pp. 113–146), Woods Institute for the Environment, Stanford University. https://woodsinstitute.stanford.edu/system/files/publications/Farm-Bill-Workshop…

Cuéllar, A. D., & Webber, M. E. (2010). Wasted food, wasted energy: The embedded energy in food waste in the United States. *Environmental Science & Technology, 44*(16), 6464−6469. https://doi.org/10.1021/es100310d

Davis, H., Sisson, H. B., & Clifton, S. (2021). A call for evidence to support food security interventions on college campuses. *Journal of American College Health*, *69*(6), 693−695. https://doi.org/10.1080/07448481.2019.1705829

Denizet-Lewis, B. (2017, October 11). Why are more American teenagers than ever suffering from severe anxiety? *The New York Times Magazine*. https://www.nytimes.com/2017/10/11/magazine/why-are-more-american-teenagers-than-ever-suffering-from-severe-anxiety.html

Devaraj, S., Wornell, E. J., Faulk, D., & Hicks, M. (2020). Rural job loss to offshoring and automation. In J. E. Glick, S. M. McHale, & V. King (Eds.), *Rural families and communities in the United States: Facing challenges and leveraging opportunities* (pp. 89−115), Springer. https://doi.org/10.1007/978-3-030-37689-5_4

Duke-Benfield, A. E., & Sponsler, B. (2019). *Leveraging public benefits to improve states' postsecondary access and completion*. Center for Law and Social Policy (CLASP). https://files.eric.ed.gov/fulltext/ED602819.pdf

Eisenberg, D. M., Righter, A. C., Matthews, B., Zhang, W., Willett, W. C., & Massa, J. (2019). Feasibility pilot study of a teaching kitchen and self-care curriculum in a workplace setting. *American Journal of Lifestyle Medicine*, *13*(3), 319−330. https://doi.org/10.1177/1559827617709757

El Zein, A., Shelnutt, K. P., Colby, S., Vilaro, M. J., Zhou, W., Greene, G., Olfert, M. D., Riggsbee, K., Stabile Morrell, J., & Mathews, A. E. (2019). Prevalence and correlates of food insecurity among US college students: A multi-institutional study. *BMC Public Health*, *19*(1), Article 660. https://doi.org/10.1186/s12889-019-6943-6

Fain, P. (2014). Leaving the system: More students are leaving higher education after their first year, according to new national numbers that are bad news for the college completion push. *Inside Higher Ed*. https://www.insidehighered.com/news/2014/07/10/clearinghouse-study-finds-declining-student-persistence-rates#.Ysw-DSpFlkw.link

Fanzo, J., Covic, N., Dobermann, A., Henson, S., Herrero, M., Pingali, P., & Staal, S. (2020). A research vision for food systems in the 2020s: Defying the status quo. *Global Food Security*, *26*, Article 100397. https://doi.org/10.1016/j.gfs.2020.100397

Ferguson, H. (2021). *Demographic changes and pandemic fallout could alter higher ed enrollment trends*. National Association of Student Financial Aid Administrators. https://www.nasfaa.org/news-item/25318/Demographic_Changes_and_Pandemic_Fallout_Could_Alter_Higher_Ed_Enrollment_Trends

Freudenberg, N., Manzo, L., Mongiello, L., Jones, H., Boeri, N., & Lamberson, P. (2013). Promoting the health of young adults in urban public universities: A case study from City University of New York. *Journal of American College Health*, *61*(7), 422–430. https://doi.org/10.1080/07448481.2013.823972

Glibert, P. M. (2020). From hogs to HABs: Impacts of industrial farming in the US on nitrogen and phosphorus and greenhouse gas pollution. *Biogeochemistry, 150*(2), 139–180. https://doi.org/10.1007/s10533-020-00691-6

Gomez, T., & Derr, V. (2021). Landscapes as living laboratories for sustainable campus planning and stewardship: A scoping review of approaches and practices. *Landscape and Urban Planning*, *216*, Article. 104259. https://doi.org/10.1016/j.landurbplan.2021.104259

Hanover Research. (2014). *Strategies for improving student retention* [Report]. https://www.hanoverresearch.com/media/Strategies-for-Improving-Student-Retention.pdf

Hansen, S. S. (2017). The campus as a living laboratory: Macalester College case study. In W. L. Filho, M. Mifsud, C. Shiel, & R. Pretorious (Eds.), *Handbook of theory and practice of sustainable development in higher education*, v. 3 (pp. 223–239), Springer. https://doi.org/10.1007/978-3-319-47895-1_14

Hemelt, S. W., & Marcotte, D. E. (2011). The impact of tuition increases on enrollment at public colleges and universities. *Educational Evaluation and Policy Analysis, 33*(4), 435–457. https://doi.org/10.3102/0162373711415261

Himmelheber, S. (2016). Relationship depth in community food security: Lessons from a case study of the Campus Kitchens Project. *Journal of Public Scholarship in Higher Education*, *6*, 77–93. https://files.eric.ed.gov/fulltext/EJ1123810.pdf

Horton, S., Nadeau, H., Flynn, A., Patterson, T., Kleisinger, S. R., & Berry, B. (2019). Circular food systems in Maine: Findings from an interdisciplinary study of food waste management. *Maine Policy Review*, *28*(1), 59–71. https://doi.org/10.53558/DBQB8487

Isenhour, C., Haedicke, M., Berry, B., MacRae, J., Blackmer, T., & Horton, S. (2022). Toxicants, entanglement, and mitigation in New England's emerging circular economy for food waste. *Journal of Environmental Studies and Sciences, 12*(2), 341–353. https://doi.org/10.1007/s13412-021-00742-w

Islami, F., Fedewa, S. A., Thomson, B., Nogueira, L., Yabroff, K. R., & Jemal, A. (2021). Association between disparities in intergenerational economic mobility and cause-specific mortality among Black and White persons in the United States. *Cancer Epidemiology*, *74*, Article 101998. https://doi.org/10.1016/j.canep.2021.101998

Johnson, L. K., Dunning, R. D., Bloom, J. D., Gunter, C. C., Boyette, M. D., & Creamer, N. G. (2018). Estimating on-farm food loss at the field level: A methodology and applied case study on a North Carolina farm. *Resources, Conservation and Recycling, 137*, 243–250. https://doi.org/10.1016/j.resconrec.2018.05.017

Joshi, A., Azuma, A. M., & Feenstra, G. (2008). Do farm-to-school programs make a difference? Findings and future research needs. *Journal of Hunger & Environmental Nutrition*, *3*(2–3), 229–246. https://doi.org/10.1080/19320240802244025

Kelloway, C. (2018). Big food paybacks to cafeteria operators spark controversy. *Food & Power*. https://www.foodandpower.net/latest/2018/09/13/big-food-paybacks-to-cafeteria-operators-spark-controversy

Kris-Etherton, P. M., Petersen, K. S., Velarde, G., Barnard, N. D., Miller, M., Ros, E., O'Keefe, J. H., Williams, K., van Horn, L., Muzi, N., Shay, C., Douglass, P., Katz, D. L., & Freeman, A. M. (2020). Barriers, opportunities, and challenges in addressing disparities in diet-related cardiovascular disease in the United States. *Journal of the American Heart Association*, *9*(7), Article e014433. https://doi.org/10.1161/JAHA.119.014433

Lang, T., & Barling, D. (2013). Nutrition and sustainability: An emerging food policy discourse. *Proceedings of the Nutrition Society*, *72*(1), 1–12. https://doi.org/10.1017/S002966511200290X

Lintern, A., McPhillips, L., Winfrey, B., Duncan, J., & Grady, C. (2020). Best management practices for diffuse nutrient pollution: Wicked problems across urban and agricultural watersheds. *Environmental Science & Technology*, *54*(15), 9159–9174. https://doi.org/10.1021/acs.est.9b07511

Liu, J., Micha, R., Li, Y., & Mozaffarian, D. (2021). Trends in food sources and diet quality among US children and adults, 2003–2018. *JAMA Network Open*, *4*(4), Article e215262. https://doi.org/10.1001/jamanetworkopen.2021.5262

Liu, J., Rehm, C. D., Onopa, J., & Mozaffarian, D. (2020). Trends in diet quality among youth in the United States, 1999–2016. *JAMA*, 323(12), 1161–1174. https://doi.org/10.1001/jama.2020.0878

Liu, J., Yi, S. S., Russo, R., Mayer, V. L., Wen, M., & Li, Y. (2023). Trends and disparities in diabetes and prediabetes among adults in the United States, 1999–2018. *Public Health, 214*, 163–170 https://doi.org/10.1016/j.puhe.2022.10.021

Looney, A., & Yannelis, C. (2022). The consequences of student loan credit expansions: Evidence from three decades of default cycles. *Journal of Financial Economics, 143*(2), 771–793. https://doi.org/10.1016/j.jfineco.2021.06.013

MacDonald, K. (2018). A review of the literature: The needs of nontraditional students in postsecondary education. *Strategic Enrollment Management Quarterly*, 5(4), 159–164. https://doi.org/10.1002/sem3.20115

MacDonald, J. M., Hoppe, R. A., & Newton, D. (2018). *Three decades of consolidation in U.S. agriculture* (EIB-189). Economic Research Service, U.S. Department of Agriculture. https://www.ers.usda.gov/publications/pub-details/?pubid=88056

Malesic, J. (2022, May 13). My college students are not OK. *The New York Times*. https://www.nytimes.com/2022/05/13/opinion/college-university-remote-pandemic.html?searchResultPosition=4

Marijolovic, K. (2023, January 25) Trauma and social anxiety are growing mental-health concerns for college students. *The Chronicle of Higher Education*. https://www.chronicle.com/article/trauma-and-social-anxiety-are-growing-mental-health-concerns-for-college-students

Martinez, S. M., Grandner, M. A., Nazmi, A., Canedo, E. R., & Ritchie, L. D. (2019). Pathways from food insecurity to health outcomes among California university students. *Nutrients*, *11*(6), Article 1419. https://doi.org/10.3390/nu11061419

Mason, B. (2023). Mental health concerns for college students: Self-harm, suicidal ideation, and substance use disorders. *Primary Care: Clinics in Office Practice*, *50*(1), 47–55. https://doi.org/10.1016/j.pop.2022.10.007

McMurtrie, B. (2022, April 5). A "stunning" level of student disconnection. *The Chronicle of Higher Education*. https://www.chronicle.com/article/a-stunning-level-of-student-disconnection

Munir, K. (2022). Sustainable food waste management strategies by applying practice theory in hospitality and food services—A systematic literature review. *Journal of Cleaner Production, 331*, Article 129991. https://doi.org/10.1016/j.jclepro.2021.129991

Nazmi, A., Martinez, S., Byrd, A., Robinson, D., Bianco, S., Maguire, J., Crutchfield, R. M., Condron, K., & Ritchie, L. (2019). A systematic review of food insecurity among US students in higher education. *Journal of Hunger & Environmental Nutrition*, *14*(5), 725–740. https://doi.org/10.1080/19320248.2018.1484316

Nguyen, H. (2020). Free college? Assessing enrollment responses to the Tennessee Promise program. *Labour Economics, 66*, Article 101882. https://doi.org/10.1016/j.labeco.2020.101882

Nose, M. (2015). Estimation of drivers of public education expenditure: Baumol's effect revisited. *International Monetary Fund Working Papers*, *2015*, 178. https://doi.org/10.5089/9781513517384.001

Olssen, M., & Peters, M. A. (2005). Neoliberalism, higher education and the knowledge economy: From the free market to knowledge capitalism. *Journal of Education Policy, 20*(3), 313–345. https://doi.org/10.1080/02680930500108718

Paradies, Y. (2006). A systematic review of empirical research on self-reported racism and health. *International Journal of Epidemiology*, *35*(4), 888–901. https://doi.org/10.1093/ije/dyl056

Patel, R. (2012). *Stuffed and starved: The hidden battle for the world food system* (Rev. ed.). Melville House.

Patton-López, M. M., López-Cevallos, D. F., Cancel-Tirado, D. I., & Vazquez, L. (2014). Prevalence and correlates of food insecurity among students attending a midsize rural university in Oregon. *Journal of Nutrition Education and Behavior*, *46*(3), 209–214. https://doi.org/10.1016/j.jneb.2013.10.007

Paul, M. (2019). Community-supported agriculture in the United States: Social, ecological, and economic benefits to farming. *Journal of Agrarian Change*, *19*(1), 162–180. https://doi.org/10.1111/joac.12280

Payne-Sturges, D. C., Tjaden, A., Caldeira, K. M., Vincent, K. B., & Arria, A. M. (2018). Student hunger on campus: Food insecurity among college students and implications for academic institutions. *American Journal of Health Promotion*, *32*(2), 349–354. https://doi.org/10.1177/0890117117719620

Peltz, J. S., Bodenlos, J. S., Kingery, J. N., & Rogge, R. D. (2021). The role of financial strain in college students' work hours, sleep, and mental health. *Journal of American College Health*, *69*(6), 577–584. https://doi.org/10.1080/07448481.2019.1705306

Penn State University. (2023). *Penn State University Course Bulletins 2022–2023: NUTR 123S: First Year Seminar in Nutritional Sciences.* https://bulletins.psu.edu/university-course-descriptions/undergraduate/nutr/

Perna, L. W., & Leigh, E. W. (2018). Understanding the promise: A typology of state and local college promise programs. *Educational Researcher*, *47*(3), 155–180. https://doi.org/10.3102/0013189X17742653

Peters, M. A., & Humes, W. (2003). Education in the knowledge economy. *Policy Futures in Education*, *1*(1), 1–19. https://doi.org/10.2304/pfie.2003.1.1.1

Picardy, J. A., Ghezzi, S., & Bilodeau, R. (2021). Teaching sustainability practice through service learning: A case study of reducing food waste. *Sustainability and Climate Change, 14*(1), 55–59. https://doi.org/10.1089/scc.2020.0048

Porter, C. M. (2018). Growing our own: Characterizing food production strategies with five U.S. community-based food justice organizations. *Journal of Agriculture, Food Systems, and Community Development*, 8(A), 167–185. https://doi.org/10.5304/jafscd.2018.08A.001

Prescott, M. P., Cleary, R., Bonanno, A., Costanigro, M., Jablonski, B. B., & Long, A. B. (2020). Farm to school activities and student outcomes: A systematic review. *Advances in Nutrition*, *11*(2), 357–374. https://doi.org/10.1093/advances/nmz094

Princeton University. (2019). *Campus vision for the future of dining 2018–2019* [Mission statement]. https://dining.princeton.edu/sites/g/files/toruqf1316/files/campusdiningvisionbook_ay18.19_singlepagelr.pdf

Rajan, J., Fredeen, A. L., Booth, A. L., & Watson, M. (2018). Measuring food waste and creating diversion opportunities at Canada's Green University.™ *Journal of Hunger & Environmental Nutrition*, *13*(4), 573–586. https://doi.org/10.1080/19320248.2017.1374900

Ratcliffe, C., & McKernan, S. M. (2010). *How much does SNAP reduce food insecurity?* The Urban Institute. https://www.urban.org/sites/default/files/publication/28506/412065-How-Much-Does-SNAP-Reduce-Food-Insecurity-.PDF

Reuter, P. R., & Forster, B. L. (2021). Student health behavior and academic performance. *PeerJ*, *9*, Article e11107. https://doi.org/10.7717/peerj.11107

Rupasingha, A., & Pender, J. (2018, May 7). Impacts of the value-added producer grant program on business outcomes. *Amber Waves*. U.S. Department of Agriculture Economic Research Service. https://www.ers.usda.gov/amber-waves/2018/may/impacts-of-the-value-added-producer-grant-program-on-business-outcomes/

Saunders, D. B. (2010). Neoliberal ideology and public higher education in the United States. *Journal for Critical Education Policy Studies*, *8*(1), 41–77. http://www.jceps.com/archives/626

Save, P., Terim Cavka, B., & Froese, T. (2021). Evaluation and lessons learned from a Campus as a Living Lab program to promote sustainable practices. *Sustainability*, 13(4), Article 1739. https://doi.org/10.3390/su13041739

Siliezar, J. (2018). *Inside the kitchen: Food recovery at RWU.* The Week at Roger: Featured News Story. https://docs.rwu.edu/cgi/viewcontent.cgi?article=1307&context=weekatroger_featured_news

Simons, R. L., Lei, M.-K., Beach, S. R. H., Barr, A. B., Simons, L. G., Gibbons, F. X., & Philibert, R. A. (2018). Discrimination, segregation, and chronic inflammation: Testing the weathering explanation for the poor health of Black Americans. *Developmental Psychology*, *54*(10), 1993–2006. https://doi.org/10.1037/dev0000511

Sogari, G., Velez-Argumedo, C., Gómez, M. I., & Mora, C. (2018). College students and eating habits: A study using an ecological model for healthy behavior. *Nutrients*, *10*(12), Article 1823. https://doi.org/10.3390/nu10121823

Swanson, E., Watson, A., Ritter, G., & Nichols, M. (2016). *Promises fulfilled? A systematic review of the impacts of Promise Programs* (EDRE Working paper 2016-16). College of Education & Health Professions, University of Arkansas. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2849194 https://doi.org/10.2139/ssrn.2849194

Tallant, A. (2017) First-year college students increase food label-reading behaviors and improve food choices in a personal nutrition seminar course. *American Journal of Health Education, 48*(5), 331−337. https://doi.org/10.1080/19325037.2017.1343160

Temple, P. (Ed.) (2012). *Universities in the knowledge economy: Higher education organisation and global change.* Routledge. https://doi.org/10.4324/9780203142899

Thille, C., & Smith, J. (2010). Learning unbound: Disrupting the Baumol/Bowen effect in higher education. *Forum Futures 2010*, 31−38. https://oli.cmu.edu/wp-content/uploads/2012/05/Thille_2010_Learning_Unbound.pdf

U.S. Department of Agriculture Economic Research Service [USDA ERS]. (2022). *The prevalence of food insecurity in 2021 is unchanged from 2020.* https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=58378

U.S. Department of Agriculture Farm Service Agency [USDA FSA]. (2022). *Conservation Reserve Program fact sheet.* https://www.fsa.usda.gov/Assets/USDA-FSA-Public/usdafiles/FactSheets/2019/conservation-reserve_program-fact_sheet.pdf

U.S. Department of Education. (2018). *Factors that influence student college choice.* Data Point (NCES 2019-119). https://nces.ed.gov/pubs2019/2019119.pdf

U.S. Government Accountability Office [GAO]. (2018). *Food insecurity: Better information could help eligible college students access federal food assistance benefits* (Highlights of Report GAO-19-95). https://www.gao.gov/assets/gao-19-95.pdf

Van Bemmel, A., & Parizeau, K. (2020). Is it food or is it waste? The materiality and relational agency of food waste across the value chain. *Journal of Cultural Economy, 13*(2), 207−220. https://doi.org/10.1080/17530350.2019.1684339

Vineis, P., Delpierre, C., Castagné, R., Fiorito, G., McCrory, C., Kivimaki, M., Stringhini, S., Carmeli, C., & Kelly-Irving, M. (2020). Health inequalities: Embodied evidence across biological layers. *Social Science & Medicine*, 246, Article 112781. https://doi.org/10.1016/j.socscimed.2019.112781

Weigel Health Center. (2018). *New initiative connects wellness with retention and student success.* State University of New York at Buffalo. https://weigel.buffalostate.edu/news/new-initiative-connects-wellness-retention-and-student-success

Wilder Research. (2014). *Nutrition and students' academic performance.* https://www.wilder.org/wilder-research/research-library/nutrition-and-students-academic-performance

Wilkie, A. C., Graunke, R. E., & Cornejo, C. (2015). Food waste auditing at three Florida schools. *Sustainability*, *7*(2), 1370−1387. https://doi.org/10.3390/su7021370

Wolfson, J. A., Insolera, N., Cohen, A., & Leung, C. W. (2021). The effect of food insecurity during college on graduation and type of degree attained: Evidence from a nationally representative longitudinal survey. *Public Health Nutrition*, *25*(2), 389−397. https://doi.org/10.1017/S1368980021003104

Wright, S., & Shore, C. (Eds.). (2017). *Death of the public university? Uncertain futures for higher education in the knowledge economy* (*Higher education in critical perspective: Practices and policies,* v. 3). Berghahn. https://doi.org/10.2307/j.ctvw04bj2

SPECIAL SECTION SPONSORED BY

Campus Food Shed: Student-led efforts at the University of Wisconsin-Madison to support food-insecure peers

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Introduction

Despite the ubiquity of campus food insecurity, it has often been an issue silent, faceless, and ignored. Only within the last decade has it received recognition as a national crisis (McCoy et al., 2022). Perhaps because college is widely regarded as a privileged endeavor, requiring substantial tuition dollars from students and their families, food insecurity has not received the attention or resources that it deserves. Although policy-level and administrative changes should take the lead in addressing

the issue, student-led groups have played a role in initiating action. Campus Food Shed (CFS), a University of Wisconsin-Madison student organization, seeks to address these concerns. Spearheaded by students, the organization partners with local grocery stores and research farms to distribute leftover food items, assisting peers across the UW-Madison campus with access to free, nutritious food. As UW-Madison alumni, our experiences through CFS have brought to our attention nationwide concerns regarding food insecurity (Goldrick-Rab et al.,

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2017). In addition, studies across the country over the last five years have demonstrated the severity of food insecurity for many college and university students (Baker-Smith et al., 2020; Broton & Cady, 2020; Broton & Goldrick-Rab, 2017; Laska et al., 2020; Watson et al., 2017).

Our research has led us to reach beyond the UW Madison community to spread awareness of the issue, as we seek to inspire other campuses and community groups to establish sustainable food distribution systems similar to the one run by CFS. In this practice brief, we describe the student-led creation and management of CFS, its daily operations, and challenges and opportunities for growth. We begin with a brief review of literature on student food insecurity and the cost of higher education to situate the need for initiatives like CFS.

The Challenge of Campus Food Insecurity
The Food and Agricultural Organization of the United Nations (FAO) defines a person as food insecure if they "lack regular access to enough safe and nutritious food for normal growth and development and an active and healthy life" (FAO, 2022, para. 4). Notably, this definition does not limit the scope of the issue to lacking food but specifies that food insecurity encompasses both lack of availability of foods with essential nutrient content for human health and lack of consistency in acquiring this food. Healthy, fresh produce options often are the most limited in institutional settings, yet research consistently shows that reduced access to healthy food negatively impacts physical and mental health as well as academic performance; student GPA, class attendance rate, and graduation rate are all at risk for poorer outcomes correlated with a lack of nutritious foods (Henry, 2017). Maroto et al. (2014) found that food-insecure students were more likely than food-secure students to have GPAs in the 2.0–2.49 range, compared to a GPA in the 3.5–4.0 range of the food secure students. Raskind et al. (2019) found that food insecurity was a major determinant of lower grade point averages among students in Georgia. Food insecurity exacerbates inequities found

throughout our campus and others, and puts the most vulnerable students at risk, contributing to poorer academic outcomes for them. Hunger and academic performance go hand in hand. Therefore, supplying healthy food to the campus community provides an opportunity to address multiple issues important to students and the university. As hunger undermines the educational success of students, it is urgent that action be taken, both at the national and community level, to ease the weight of the burden.

Availability of food resources is not the only factor in play: the cultural stigma surrounding the use of food assistance has been demonstrated to significantly impede food-insecure populations from accessing available and needed resources. While food banks are available on many campuses, accessibility and stigma remain an issue. For example, 64% of students reported negative stigma associated with use of food banks on campus according to Swipe Out Hunger (2020). Research conducted by El Zein et al. (2018) to determine why hungry college students were not seeking help concluded that most students (70%) were aware of the existing food pantry on their campus. Of the one-third of students that self-identified as food insecure, only 38% reported food pantry use. Food-insecure students reported feelings of awkwardness, embarrassment, negative self-worth, shame, and the desire to avoid conversations or interactions with their peers that involved purchasing food. Many stated that being a "broke" college student struggling to get by is perceived as normal, and stereotypical of the college experience, which contributes to the stigma of food assistance use. Food-insecure participants were quick to dismiss their struggles and shared the common view that others were worse off than they were since they had made the decision to go to college and spend money on tuition. In addition to the stigma, this shame kept them from utilizing resources they perceived to be intended for others in their community (El Zein et al., 2018).

According to the Hope Center,[1] an average of 43% of students attending two- and four-year insti-

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[1] The Hope Center at Temple University is responsible for conducting the largest, longest-running annual assessment of basic needs insecurity among college students. This program was formerly located at the University of Wisconsin-Madison.

tutions reported food insecurity in 2015–2019 (Baker-Smith et al., 2020). This data is corroborated by a 2016 study coordinated by the Wisconsin Hope Lab, which surveyed students at 34 two- and four-year institutions in 12 states. The study found that 48% of the 3,765 respondents self-identified as having experienced food insecurity over the previous 30 days. Consistent with the knowledge of profound systemic inequities between white and non-white Americans, 57% of BIPOC students reported food insecurity compared to 40% of white students. Furthermore, 56% of first-generation students were food insecure. The students found to be primarily impacted included those who were employed (56%) and those who received financial assistance (75%) (Dubick et al., 2016).

Food insecurity was exacerbated during the COVID-19 pandemic. Students infected with COVID-19 were 1.7 times more likely to be food insecure than the non-infected (Goldrick-Rab et al., 2022). A survey of 1000 undergraduates during the early stages of the pandemic indicated that 52% reported using off-campus food banks occasionally, while 30% used them monthly or more frequently (Swipe Out Hunger, 2020). One-third of students in the survey reported knowing a student who had dropped out of college due to food accessibility issues (Swipe Out Hunger, 2020).

Government programs have offered some relief during the pandemic, but only for students meeting specific requirements. While the Supplemental Nutrition Assistance Program (SNAP) allows for assistance in food purchasing, students traditionally are ineligible for the program unless they meet a narrow set of exemptions. The Consolidated Appropriations Act of 2021 expanded exemptions to include students eligible for work study and students whose families do not contribute to the costs of their education. However, these two new exemptions are considered temporary, due to the pandemic (U.S. Department of Agriculture Food and Nutrition Service, 2021).

Cost of Higher Education
One of the most important considerations for food-insecure students is the high cost of college tuition, housing, and school-related expenses. During the 2018–19 academic year in the United States, undergraduate tuition, fees, room, and board were approximately US$18,383 at public institutions, US$47,419 at private nonprofit institutions, and US$27,040 at private for-profit institutions. During the previous ten-year period, prices at public and private non-profit institutions increased 28% and 29%, respectively, when adjusted for inflation. Estimates suggest that college costs are three times what they were in 1980, while median incomes have hardly increased during that period when adjusted for inflation. The high cost of college is felt most acutely by those in the lowest quartile of median income. As income inequality continues to rise in the U.S., many economists predict even greater difficulty in affording college for those in lower levels of income (De Brey et al., 2021). Despite the sharply rising cost of college, there has been a marked increase in overall college enrollment, including students from historically underrepresented populations (Hussar et al., 2020). As a result, many students experience significant economic hardship and limited budgets that often do not permit adequate quality or quantities of food.

Wisconsin resident tuition at UW-Madison for the 2021–2022 school year was US$10,766, with tuition remaining frozen since 2012 (University of Wisconsin-Madison, 2021a). While this may be a comparatively low tuition for a school of UW-Madison's caliber, the full cost to attend may approach US$25,000 per year when housing, food, and school supplies are considered (University of Wisconsin Office of Student Financial Aid, 2022). This puts the cost of attendance at US$100,000 for a four-year degree. Despite the cost, more than half of UW-Madison students did not take out student loans during their undergraduate degree (University of Wisconsin-Madison, 2021a). Furthermore, the number of UW-Madison undergraduates finishing school without loan debt has increased 10% over the last decade. For student borrowers, loan rates and debt are significantly below those of UW-Madison's peers (University of Wisconsin-Madison 2021b). Forty percent of students attending UW System schools come from families in the top 20% of family income, and the median annual income of families with students attending UW schools is above US$90,000 ("Economic diversity and stu-

dent outcomes," 2017). Thus, lower-income students and those without family resources to help with educational costs are likely in the minority at campuses like UW-Madison.

UW-Madison has recently implemented a program through which Wisconsin students with a family income of US$56,000 or less who want to attend UW-Madison can obtain four years of tuition and fees covered by the university. Dubbed "Bucky's Tuition Promise"[2] (after the university's mascot, Bucky Badger), the program is also extended to in-state transfer students, who can receive two years of tuition and fees. The university is spending more than US$3 million per year on this program to support students from lower-income families.

Creation of the Campus Food Shed

UW-Madison is part of the land grant system, established by the Morrill Act of 1862. The Act provided opportunities for education in agriculture and the mechanical arts and played a powerful role in democratizing and expanding post-secondary educational opportunities during the 19th and 20th centuries. Re-examination of the land grant mission's origins and goals is an ongoing process that has received much attention in recent years, including the issue of food security on campuses such as UW-Madison.

Students, staff, and faculty in the land grant colleges conduct research and extension programs to serve the agricultural communities of their states, using research stations for crop and livestock production where new practices and techniques can be tested and

evaluated. For many years, researchers in field-based projects have harvested excess produce once experiments and test-plots were complete and made the produce available to the university community. However well-intentioned these efforts have been at UW-Madison, they were done on an ad hoc basis without any formal structure or way to reach students beyond those working in research labs. In 2016, Hayden DePorter, then an undergraduate at the university, observed this ineffective system of food distribution as an opportunity to redistribute excess produce in a more accessible manner to students. DePorter's understanding of equity issues and food insecurity across campus underpinned the need for such an opportunity. From the knowledge of these social issues, coupled with awareness of available, otherwise wasted food, the idea for CFS was born (Figure 1). DePorter shared their ideas with Irwin Goldman, a faculty member in the Department of Horticulture, and they worked with a group of students to develop the concept of CFS on the UW-Madison campus. Students since then have led the development and

Figure 1. Hayden DePorter Welcoming Students at the Opening of Campus Food Shed, 2017, at the Student Activities Center on East Campus Mall, University of Wisconsin-Madison

This refrigerator filled with fresh produce was one of several available to UW-Madison students beginning in summer 2017.

Photo courtesy of Campus Food Shed.

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[2] For more details, see https://financialaid.wisc.edu/types-of-aid/badger-promise/

maintenance of the CFS program, with Goldman providing guidance and help with logistics and administrative issues that required navigation among campus units. Student leaders associated with the program, along with Goldman, co-authored this practice brief.

After initial program development, the idea of CFS was brought to fruition in coordination with university faculty involved in plant breeding (many of whom were responsible for the field plots providing produce), attorneys at the Office of Administrative Legal Services, University Health Services, and building operations staff. To fund the program, DePorter received the Baldwin Wisconsin Idea Endowment from the university, which provided grant money to purchase refrigerators to house leftover produce. The refrigerators were placed in four accessible locations across campus. DePorter's idea began to gain attention across campus, and with the help of other students committed to combatting food insecurity and reducing waste, CFS was added to the Registered Student Organizations (RSOs) at UW-Madison, ensuring the program's longevity and sustainability. Students involved in developing and running CFS come from a variety of educational programs, from engineer-ing to communications, and their diverse range of experiences afforded CFS different perspectives and connections to maximize the impact of CFS operations. Working on CFS has provided a unique educational opportunity for students to assess food security and equity issues on the UW-Madison campus.

In addition, students forged a partnership with a local grocery store, Fresh Madison Market. After students met with grocery store representatives to discuss CFS goals, Fresh Madison Market agreed to donate leftover food items to CFS. In addition to produce obtained at university research farms, these donations have allowed CFS to maintain a higher volume of food items and year-round distribution efforts.

Campus Food Shed Operations
In addition to excess produce yielded from University Research Stations, CFS has been able to recover hundreds of pounds of produce each week through near-daily recoveries from Fresh Madison Market during a typical semester (i.e., not impacted by the coronavirus pandemic). Throughout the day, the Market produce department manager sets aside produce that cannot be sold, predominantly because an excess was purchased, the sell by/use by/best by/expiration date is passing, and/or the produce is aesthetically or qualitatively imperfect. In the latter category, apples with small bruises, bananas that are beginning to brown, or containers of berries with a single fruit beginning to mold are some of the most common items set aside for CFS volunteers to recover. Much of the food is otherwise in prime condition, however, and remains edible (Figure 2).

In the evening, food recovery volunteer(s) cart

Figure 2. Boxes Filled with Produce from a Daily Recovery

Photo courtesy of Campus Food Shed.

the load from Fresh Madison Market to an American National Standards Institute (ANSI)-certified community refrigerator strategically located in UW-Madison's Student Activity Center, which is in the same building complex as the grocery store. ANSI certification allows the safe storage of items beyond whole produce, such as pre-cut produce, pre-made salads, juices, etc. The Student Activity Center is a central location on campus, close to downtown, that receives consistent student traffic throughout the day. Though the Center is the main site of operation, CFS occasionally stocks other refrigerators across campus when a CFS member or volunteer can access a personal vehicle to transport the food items.

A distinguishing feature of CFS is that food is distributed in well-known, highly trafficked, and safe areas with no check-in process required. Refrigerators are housed in public locations across campus and students are welcome to access food at any time when the buildings are open. This policy protects student identity and makes food assistance available to the entire campus community, which aims to eliminate the stigma barrier for food-insecure individuals.

In a typical recovery, volunteer(s) methodically sort through the food items recovered that day and that have been left in the refrigerator from the previous day to dispose of any spoiled or low-quality items (Figure 3). Under the protection of the Bill Emerson Good Samaritan Food Donation Act, which provides limited liability protection to persons donating food "in good faith" (Feeding America, 1996, para. 2), the produce is then made available.

Once the refrigerator is filled, volunteer(s) make posts on both Instagram and Facebook to notify CFS followers of the food items available that evening. After the notification, students typically empty the refrigerator within a few hours. Social media provides immediate, easy and accessible communication to students who are most in need of food. CFS also uses social media to recruit volunteers: open positions and volunteer slots are advertised and interested students are encouraged to reach out. Those who have expressed interest receive weekly sign-up sheets from CFS, allowing CFS to maintain a large pool of volunteers to support near-daily recovery and distribution of a high volume of food items.

In addition to collecting excess produce from plant breeding research and Fresh Madison Market recoveries, CFS students have established connections with other community groups. These include occasional gleaning efforts at the Dane County Farmer's Market, which involve retrieval of produce that does not get sold in various vendors' stalls, and collecting donated bread and baked items from Madison Sourdough Company and Collectivo Coffee. These organizations and businesses became donation partners because UW students directly proposed the opportunity and coordinated recovery logistics.

The continued support from community partners has always been imperative to the success of CFS. When campus buildings closed at the beginning of the COVID-19 pandemic, CFS became unable to utilize its community refrigerators. The generosity and accommodation of a local campus ministry already dedicating space for other student-led food assistance and sustainability initiatives allowed CFS to reshape its operations in accordance with coronavirus-related health measures. Through partnerships with other food-related student organizations and the enduring commitment of dedicated volunteers, CFS was able to recover, transport, and store food in the ministry's kitchen on a daily basis. Produce distribution took place in coordination with UW Frozen Meals[3] and Slow Food UW[4] meal handouts twice weekly (Figure 4). During the pandemic, CFS was able to safely continue supporting the UW-Madison community by alleviating the financial burden of fresh food procurement.

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[3] The UW Frozen Meals is a student-run initiative that packages unserved dining hall food into individual meals that are frozen and available for students at no cost.

[4] Slow Food UW produces weekly meals for the community using locally sourced food and a pay-what-you-can policy to make these meals financially accessible to everyone.

Challenges and Opportunities for Growth

Food Safety Concerns

The vast majority of the feedback CFS has received via social media and anonymous student surveys is positive; nevertheless, there have been a number of suggestions that have led to improved safety measures. After an anonymous safety complaint to UW-Madison's Environment, Health & Safety Division, CFS student leaders met with the Division to discuss compliance with university food storage and distribution policies. Although CFS maintains a level of protection from liability under the Bill Emerson Act, all UW-Madison RSOs must operate in accordance with UW-Madison's own set of safety guidelines. As a result of the meeting, CFS

3A

3B

**Figure 3A and B. (A) Raw Produce is Brought to a Central Location.
(B) Produce is Methodically Sorted and Organized**

Photo courtesy Campus Food Shed.

has made a continuous and rigorous effort to maintain safety protocols in food storage. Through funding from the Wisconsin Idea Fellowship, CFS leaders purchased the aforementioned ANSI-approved commercial refrigerator with an integral thermometer. Since the inception of CFS, the organization has observed no known reports of food-borne illness traced back to the items stocked in refrigerators.

Transportation

A significant expansion opportunity for CFS would be to place more refrigerators across the UW-Madison campus. This would allow food to become even more accessible within the large campus community, and would further normalize the utilization of food resources. The main challenge to placement of more refrigerators is transportation. While Fresh Madison Market is conveniently in the same building complex as the main site of CFS operations, eliminating the need for a vehicle to transport food, more sites of operation across campus would necessitate a vehicle to move recovered food. It has been difficult to recruit CFS members and volunteers on campus who have access to vehicles. This problem may be alleviated by utilizing rental vehicles or university-affiliated cars, but obtaining consistent funding to operate the vehicles remains challenging.

Collecting Data

Equity and justice are central to the CFS mission of nutritious, affordable, and culturally appropriate food for all. We aim for our work to contribute to food justice by providing universal access to nutritious, affordable food. Tracking and improving equitable out-comes of our program has always been an area of great interest and discussion; however, we have not yet developed this aspect of our program. One reason is that we strive to protect the anonymity of students who utilize CFS, which we believe is critical to our success and our commitment to reducing stigma. However, this has made direct communication difficult with students who inequitably experience food insecurity. Although we rely heavily on social media comments, direct messages, and email inquiries for data about the populations we serve, we still do not have extensive information about which demographic groups benefit most from CFS, nor those whom CFS could better serve. Currently, representatives from CFS are working with other students and faculty members in a UW Office of Sustainability working group to create and disseminate a campus-wide food (in)security survey that will collect comprehensive, current information on the food (in)security status of the UW-Madison campus. It will include the complete definition of food insecurity, followed by careful questioning that allows

Figure 4. Socially Distanced Food Handouts Took Place at Designated Times Twice per Week During the First Stages of the COVID-19 Pandemic

Photo courtesy of Campus Food Shed.

us to fully understand the extent to which students are impacted by lack of food. This is an attempt to avoid conflating "hunger" with food insecurity, a stigmatized and oversimplified description. Questions regarding student demographics and their knowledge and use of various food resources on campus will also be included. This data will help us to understand which students need our resources the most so that we can tailor our program reach accordingly, potentially reserving portions of food for those who have the most need.

BIPOC Initiatives

Awareness of issues faced by BIPOC students is growing at UW-Madison, though the opportunity for addressing these issues is long overdue. Several recent observations have led us to conclude that our campus is trying to address longstanding bias and ignorance with respect to BIPOC students. In 2021, UW-Madison formally recognized the Ho Chunk Nation's sovereignty over the land upon which our campus was built. The Ho Chunk were forcibly removed from the land following an 1832 treaty that was signed under duress and without informed consent.[5] The university also established an Office of Tribal Relations to foster a relationship with the 12 First Nations of Wisconsin. In 2021, the university established its first Office of Diversity, Equity, and Inclusion and hired a cabinet-level director to oversee its efforts. The university has recently created the BIPOC Student Voices Reader, an anthology of BIPOC student essays that focus on their experiences as students at UW-Madison, and how these experiences are informed by their marginalized identities (Chen, 2021). The reader is used in courses on campus that address diversity, equity, and inclusion. We hope these efforts will make for a more welcoming campus for students from marginalized communities than in previous generations. However, more work needs to be done in terms of analyzing food equity issues within these communities at UW-Madison. We hope that CFS can one day begin to spearhead these efforts.

Miscellaneous Projects

In collaboration with the computer science student organization Coding for Good, we have attempted to develop a mobile device application for sending refrigerator status updates more efficiently to students' devices, to allow for more effective immediate communication with students with the (self-identified) highest need. Progress was curbed during Covid-19, but we hope to bring these plans to fruition in the future.

Conclusion

Colleges and universities seeking to implement similar strategies to combat food insecurity may draw on lessons learned from CFS. These include:

1. Identify and reach out to sources of food that are willing to donate leftover items. Internal campus sources include university research farms or dining halls. Community sources may include local grocery stores, restaurants, and farmers' markets

2. Reach out to risk management or environmental safety offices within the university before beginning to store food on campus to ensure compliance with any food safety guidelines. Some institutions may require a commercial-grade ANSI-approved refrigerator to store food items with expiration dates or pre-packaged/pre-made items

3. Use social media as a tool to keep students up-to-date about food availability and gain a greater presence and audience within the campus community

4. Students interested in engaging in a project similar to CFS long-term should consider establishing themselves as an official student organization in the eyes of their university. This ensures both recognition and longevity of the group and its efforts

5. Place food in accessible, yet inconspicuous locations. This allows for the destigmatization of those utilizing food resources by protecting anonymity

6. Carefully consider how data is to be collected. It is important to preserve anonym-

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[5] See https://chancellor.wisc.edu/blog/recognizing-our-shared-history-with-the-ho-chunk-nation/ for more details.

ity, but it is still beneficial to collect demographic information to learn about which sub-populations of students inequitably experience food insecurity.

CFS was among the first efforts on the UW-Madison campus to address food insecurity. The project is attempting to improve an acute problem on our campus in ways that will allow for destigmatized, equitable student and community participation. It is crucial that CFS has always been student-led and student-managed, providing unique opportunities for student engagement and leadership. Funding for the project was obtained from internal campus sources, but as the project matures there may be opportunities to expand funding opportunities beyond the campus and to partner with other campuses to form networks that can better support food-insecure students. The CFS project faces many challenges, not the least of which is maintaining partnerships with a variety of organizations against the backdrop of the constantly changing membership of student organizations. Regardless of these challenges, CFS demonstrates that the vision and energy of students can make a difference in addressing the critical issue of campus food insecurity.

References

Baker-Smith, C., Coca, V., Goldrick-Rab, S., Looker, E., Richardson, B., & Williams, T. (2020). *#RealCollege 2020: Five years of evidence on campus basic needs insecurity* [Report]. The Hope Center for College, Community, and Justice, Temple University. https://tacc.org/sites/default/files/documents/2020-02/2019_realcollege_survey_report.pdf

Broton, K. M., & Cady, C. L. (Eds.) (2020). *Food insecurity on campus: Action and intervention.* Johns Hopkins University Press.

Broton, K. M., & Goldrick-Rab, S. (2017). Going without: An exploration of food and housing insecurity among undergraduates. *Educational Researcher*, *47*(2), 121–133. https://doi.org/10.3102/0013189X17741303

Chen, C. (2021, April 2). UW libraries announce call for proposals for contributions of essays focused on students' experiences. *Badger Herald.* https://badgerherald.com/tag/uw-bipoc-student-voices-reader/

De Brey, C., Snyder, T. D., Zhang, A., & Dillow, S. A. (2021). *Digest of education statistics 2019* (NCES 2021-009). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. https://nces.ed.gov/pubs2021/2021009.pdf

Dubick, J., Mathews, B., & Cady, C. L. (2016). *Hunger on campus: The challenge of food insecurity for college students* [Report]. http://studentsagainsthunger.org/wp-content/uploads/2016/10/Hunger_On_Campus.pdf

El Zein, A., Mathews, A. E., House, L., & Shelnutt, K. P. (2018). Why are hungry college students not seeking help? Predictors of and barriers to using an on-campus food pantry. *Nutrients*, *10*(9), Art. 1163. https://doi.org/10.3390/nu10091163

Feeding America. (1996). *Bill Emerson Act.* https://www.feedingamerica.org/ways-to-give/corporate-and-foundations/product-partner/bill-emerson

Food and Agriculture Organization of the United Nations [FAO]. (2022). *Hunger and food insecurity.* https://www.fao.org/hunger/en/#:~:text=A%20person%20is%20food%20insecure,at%20different%20levels%20of%20severity

Goldrick-Rab, S., Coca, V., Gill, J., Clark, K., Looker, E., & Peele, M. (2022). Self-reported COVID-19 infection and implications for mental health and food insecurity among American college students. *Proceedings of the National Academy of Sciences USA*, *119*(7), Art. e2111787119. https://doi.org/10.1073/pnas.2111787119

Goldrick-Rab, S., Richardson, J., & Hernandez, A. (2017). *Hungry and homeless in college: Results from a national study of basic needs insecurity in higher education.* Wisconsin Hope Lab, Association of Community College Trustees. https://www.luminafoundation.org/wp-content/uploads/2017/08/hungry-and-homeless-in-college.pdf

Henry, L. (2017). Understanding food insecurity among college students: Experience, motivation, and local solutions. *Annals of Anthropological Practice*, *41*(1), 6–19. https://doi.org/10.1111/napa.12108

Hussar, B., Zhang, J., Hein, S., Wang, K., Roberts, A., Cui, J., Smith, M., Bullock Mann, F., Barmer, A., & Dilig, R. (2020). *Condition of education: College enrollment rates*. National Center for Education Statistics, U.S. Department of Education. https://nces.ed.gov/programs/coe/pdf/coe_cpb.pdf

Laska, M. N., Fleischhacker, S., Petsoulis, C., Bruning, M., & Stebleton, M. J. (2020). Addressing college food insecurity: An assessment of federal legislation before and during coronavirus disease-2019. *Journal of Nutrition Education and Behavior*, *52*(10), 982–987. https://doi.org/10.1016/j.jneb.2020.07.001

Maroto, M. E., Snelling, A., & Linck, H. (2014). Food insecurity among community college students: Prevalence and association with grade point average. *Community College Journal of Research and Practice*, *39*(6), 515–526. https://doi.org/10.1080/10668926.2013.850758

New York Times, The. (2017). Economic diversity and student outcomes at University of Wisconsin. The Upshot. https://www.nytimes.com/interactive/projects/college-mobility/university-of-wisconsin

Raskind, I., Haardorfer, R., & Berg, C. J. (2019). Food insecurity, psychosocial health, and academic performance among college and university students in Georgia, USA. *Public Health and Nutrition*, *22*(3), 476–485. https://doi.org/10.1017/S1368980018003439

Swipe Out Hunger. (2020, December 9). *New survey reveals one-third of college students have missed a meal at least once a week since the pandemic*. https://www.swipehunger.org/chegg/

U.S. Department of Agriculture [USDA]. (2021). *Supplemental nutrition assistance program (SNAP)*. https://www.fns.usda.gov/snap/students

USDA Food and Nutrition Service. (2021, March 25). *Supplemental Nutrition Assistance Program (SNAP): Students*. https://www.fns.usda.gov/snap/students

University of Wisconsin Office of Student Financial Aid. (2022). *Cost of attendance*. https://financialaid.wisc.edu/cost-of-attendance/

University of Wisconsin-Madison. (2021a). *Regents approve increase in nonresident undergraduate tuition*. News, University Communications. https://news.wisc.edu/regents-approve-increase-in-nonresident-undergraduate-tuition/

University of Wisconsin-Madison. (2021b). *A positive pattern continues: More than half of UW–Madison seniors graduate with no debt*. News, University Communications. https://news.wisc.edu/a-positive-pattern-continues-more-than-half-of-uw-madison-seniors-graduate-with-no-debt/

Watson, T. D., Malan, H., Glik, D., & Martinez, S. M. (2017). College students identify university support for basic needs and life skills as key ingredients in addressing food insecurity on campus. *California Agriculture*, *71*(3), 130–138. https://doi.org/10.3733/ca.2017a0023

Practice Brief for the Special Section:
Justice and Equity Approaches to College and University Student Food (In)Security

Narrowing the equity gap in student food security: A student-led approach at the University of Wyoming

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Introduction

About 40% of U.S. college students experienced food insecurity even before the pandemic, when the numbers rose further (Rafferty et al., this issue). The burdens of the problem rest disproportionately on the shoulders of students whom our society already disadvantages, such as students of color and those from families who struggle with low income. Although most institutions of higher education have begun efforts to address food insecurity among students in general, fewer have built strategies that explicitly aim to tackle these stark disparities in which student groups face the highest rates of food insecurity. In this practice brief, we share experiences and practice recommendations from our shared work to narrow these gaps at the University of Wyoming (UW).

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Measuring College and University
Student Food Insecurity

Attendance in U.S. colleges and universities began rising sharply after World War II (Snyder, 1993). However, the U.S. only began monitoring food security generally in the mid-1990s, and the first published study of student food insecurity, to our knowledge, was the work of Chaparro et al. (2009). Wider efforts to track the issue began in 2014 as part of an assessment led by The Ohio State University of student financial wellbeing, including food security. The assessment collected three rounds of data in 2014, 2017, and 2020 from over 75,000 students at hundreds of institutions, including community colleges (The Ohio State University Center for the Study of Student Life, n.d.). From 2015 to 2021, the #RealCollege Survey conducted by The Hope Center for College, Community, and Justice (currently housed at Temple University) was an even larger student basic needs tracking effort, with half a million student responses from over 500 colleges and universities; The Hope Center is planning for a new assessment in 2023 (The Hope Center, n.d.).

These surveys, and others, not only consistently find high rates of student food insecurity but also statistically significant disparities in who experiences it. For example, students of color bear a disproportionate share of the food insecurity burden (Reeder et al., 2020; Wilcox et al., 2022), as do LGTBQIA+ students (Willis, 2019). The most recent Hope Center survey reported that 75% of Indigenous and 70% of Black students were food insecure and/or housing insecure compared to 54% of White students (McCoy et al., 2022). As described below, we found these and other stark inequities in who experiences food insecurity among the UW student body.

Addressing Student Food Security in
Higher Education

As student accounts of personal experiences of food insecurity were amplified by these new data sets revealing the magnitude of the problem, more campuses began organizing toward solutions. For example, in 2010, a group of students at a California university founded Swipe Out Hunger to promote students sharing dining hall meal swipes with their peers (Swipe Out Hunger, 2022). By 2021, the effort had over 140 campus members. Mirroring national U.S. nongovernment hunger response, a major higher education response has been to open campus-based food banks and pantries. In 2012, the College and University Food Bank Alliance (CUFBA) formed to connect these efforts, with 800 campuses joining by 2021. That year, Swipe Out Hunger merged with CUFBA to combine efforts; today they work with about 550 institutions on food banks and other strategies, including advocating for policy changes (Swipe Out Hunger, 2022). Many other institutions, including UW, are also working to address food insecurity independent of these organizations.

Though efforts to improve student food security in general may often reach those who most need the support, ending disparities requires a more proactive approach (Haggerty et al., 2018; Savoie-Roskos et al., 2023). And while efforts to measure who disproportionately experiences student food insecurity have grown, we were unable to find examples of colleges and universities implementing strategies to explicitly address that inequity, though we expect many may be working toward it. This gap in published strategies for food security equity encouraged us to share our experience at UW here.

A Student-Engaged and -Led History
of Addressing Food Insecurity at
University of Wyoming

In 2017, two events spurred a few members of the UW community into the first UW actions to address student food insecurity. First, Porter and Budowle connected Alanna Elder, a student who co-led the UW Sustainability Coalition student organization and was exploring student food insecurity for her undergraduate honors thesis, mentored by Budowle, with previously unshared Ohio State Financial Wellness Study results for UW. Those results indicated that over 37% of UW students experienced food insecurity, with half of those students experiencing very low food security. Elder examined the UW survey data in her thesis (Elder, 2018a) and reported on the problem along with personal student stories of food insecurity on Wyoming Public Radio (Elder, 2018b).

Second, a staff member mobilized her academic unit after one of their students shared with her that they were able to eat mainly when they could identify and attend campus events that offered food. They spent more time at these events than on their studies, but were still hungry on most days, especially on weekends. That staff member, with support from Elder, Budowle, and others, launched a food share cabinet in their home building, open for anyone to access or contribute food regardless of need. With shared food from faculty, staff, and students and generous donor support, the unit has kept the cabinet stocked since 2017 (UW Food Security Taskforce, n.d.). To our knowledge, this was the first consistent strategy to address student food insecurity at UW. As news of this approach spread, additional departments and units across campus launched their own food share cabinets. The Sustainability Coalition, advised by Budowle, made student food security central to its action agenda. The Coalition collaborated with the UW student government (Associated Students of UW [ASUW]) through a strategic partnership. The partnership included a resolution recognizing UW student food insecurity as a pervasive problem and calling for action, expanding an executive ASUW student position focused on it along with other wellness and sustainability issues, and securing funding to address it.

Budowle and Porter then made student food (in)security a centerpiece of their campus sustainability and food, health, and justice experiential project-based courses, respectively. Student projects included creating a guide to help others establish and manage food share cabinets (Yoder et al., n.d.), writing and receiving a food share cabinet expansion support funding proposal, and compiling a menu of student food security strategies for the UW administration based on best practices at other campuses.

A new Sustainability Coalition co-leader, Caitlin McLennan (co-editor of this special section), worked closely through Porter's food, health, and justice course with the then-ASUW wellness and sustainability director, Anna Savage, to convene

campus stakeholders, including from the administration, to help foster student food security action. In 2019, this group of students, staff, faculty, and administrators became the UW Food Security Taskforce ("the Taskforce"). Taskforce membership is open to all, and it continues to be co-led by the Sustainability Coalition and ASUW, as established by McLennan and Savage. At one of the first meetings, Porter presented the menu of strategies drafted by her students, from campus grocery stores to gardens (Budowle et. al., 2019). The most senior administrator at the meeting responded, "Let's do them all." The Taskforce soon formed a mission around ending food insecurity at UW, mainly for students but extending to other members of the campus community, to "ensure that every Poke is nourished."[1] Values include focusing on securing high-quality and culturally appropriate food; using multiple high-impact, sustainable strategies; identifying and addressing underlying factors; prioritizing dignity and respect with a sharing ethos; and amplifying students' voices for a justice approach to student food security.

To facilitate focused action, the Taskforce soon formed working groups to tackle its priorities, such as a central campus food pantry, support for expanding student-led food share cabinets across campus, meal swipe sharing, and piloting good food recovery. Another was to more frequently and accurately measure food insecurity at UW—including which students are most affected and underlying contributing factors—and seek direct student input on strategies. With overall guidance from the Taskforce and mentorship from several faculty members via a working group, a nutrition graduate student and Taskforce member took on a campus-wide survey to measure food insecurity as his master's thesis. His specific thesis findings on military-connected student food security status and priorities have been published (Schinkel et al., 2023). Initial overall survey findings compiled for the Taskforce show that nearly half of UW students (46.8%) reported being food insecure and that rates were much higher among students of color, especially Native American students, nonbi-

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[1] A "Poke" is the gender-neutral version of UW's mascot (i.e., "Cowpokes"); students, staff, faculty, and alumni frequently use the phrase "Go Pokes!"

nary students, and international students (Schinkel et al., 2020). (An associated manuscript is in preparation for peer review.)

In the face of those survey results, Porter proposed a Taskforce equity working group to focus on narrowing these gaps. The Taskforce unanimously agreed in fall 2021, and several student and faculty members volunteered to launch and join it.

Focusing on Equity in UW Student Food Security

Porter and Budowle again turned to student leaders in the Sustainability Coalition and Taskforce, including a student co-leader of both at the time, Nicole Morshead. Budowle also incorporated the equity working group as one of the project options in her spring 2022 campus sustainability course, the fifth year of the course to feature a student food insecurity project option. In this way, the course aims to "develop student and mentor-partner capacity for sustained engagement in particular areas of need for long-term and ongoing local sustainability challenges and opportunities" (Budowle et al., 2021, p. 6), such as student food insecurity. Porter and Morshead co-mentored a group of students who selected the project, including co-author Grimm and two others. We approached this work in three phases, beginning with and extending beyond the campus sustainability course: listening, following up, and learning.

Listening

The mentors and students gathered to strategize. Porter suggested that rather than inviting people to come to the Taskforce, the team should identify groups on campus associated with those student populations experiencing the highest food insecurity rates and come to them to share what the Taskforce was doing and hear about their priorities, assets, and ideas to improve student food security. This approach aimed to reduce the burden on already overtaxed minority groups at our predominantly white institution and create deeper and wider openings for listening by going to their tables, if invited, rather than only asking people to join ours.

Student team members reached out with "cold call" emails to international, LGTBQIA+, and

Black student groups. In addition, Porter contacted her collaborators in the Native American Education, Research, and Cultural Center at UW. The emails asked each group if equity team members could join an existing meeting or event and solicit needs, priorities, assets, and ideas about fostering food security. We also prepared and shared a summary of existing UW student food security resources to introduce this context as a basis for conversations and promote the opportunities already available. We heard back from the international student services and global engagement offices, a coalition of students associated with UW's LGBTQIA+ community, and the Native American center, but we did not hear back from the Black student group.

The international student services office had already launched a food share cabinet through staff-led efforts, and we heard back quickly with an invitation to a standing breakfast event for international students. Most of our group attended, equipped with hard copies of the resource summary and questions for the students. We each sat with different groups and moved among them as students came and went. Students clearly asked for an interactive map of food resources, linked from a QR code posted near their food share cabinet. Other needs included family supplies such as diapers, longer hours for accessing food resources, and more food as well as more diverse and culturally appropriate food in the cabinet (and, for the few familiar with it, in the central UW Food Share Pantry) (Every Poke Nourished, n.d.). Some suggested upgrading the filing cabinet currently holding the food to something that would better display its contents and be easier to open and adding a refrigerator and/or freezer. A few students also suggested hosting potlucks to share food and company.

Student team members also accepted an invitation to visit the Rainbow Resource Center, part of Multicultural Affairs at UW. The hosts pointed out that students who identify as LGBTQIA+ are more likely to be estranged from their parents while still officially being their financial dependents. This can mean that students are actually financially insecure but prevented from accessing any means-tested resources. (These points are mir-

rored in Henry et al. in this issue.) They suggested to explicitly communicate that all UW food security resources are available to everyone, regardless of any demonstration of need. They also noted that the Multicultural Resource Center (MRC) had the space and funding to establish a food share cabinet and requested a copy of the guide for establishing cabinets.

Student leaders at the Native American center told Porter they would like to establish a food share cabinet in their building. They sought support to obtain funds to acquire an attractive wooden cabinet and stock it.

Following Up
In response to the ideas and priorities shared by international students, the student team developed an online interactive map (Figure 1), guiding students to locations, services, and hours for each existing

UW food resource, including food share cabinets scattered across campus (Every Poke Nourished, n.d.). Students distributed a poster advertising that food resources are available with a QR code taking users to the map to each group contacted and all student food share cabinet contacts on campus.

While the equity group initially aimed to provide a second-hand cabinet funded by Porter, an international student services staff member worked with her family and colleagues to secure their own. One international student made securing a refrigerator with a freezer to supplement the cabinet as part of her project work for another of Porter's courses. She was chair of the student nutrition club, which purchased a refrigerator at the end of 2022 where leftover food from events can now be shared. Staff are also helping another food share cabinet group on campus to acquire their own refrigerator with a freezer.

Figure 1. An Online Interactive Map of University of Wyoming Food Security Resources, Shown Here Featuring the Be'3Einoooonesi Cebisee (Walking Cedar Tree) Food Share Cabinet

Image courtesy of Every Poke Nourished, n.d.

Currently, the international staff member who started the cabinet has noted that they lack standing funds to keep the cabinet and refrigerator/freezer fully stocked. The UW Food Share Pantry provides some supplies, and the Sustainability Coalition has provided funding that the organization competitively received from ASUW for a natural foods online grocer to support cabinets campuswide. These sources, however, are not enough, not long-term, and/or not always desirable or culturally appropriate to the students. The staff member has been stringing together small donations and funding opportunities to keep some items on the shelves. The world language departments raised US$120 for the cabinet, but the rice, beans, and lentils bought with those funds were gone within a few days. A senior administrator secured some local meat donations to fill the freezer, although they expected those to be gone not long after announcing their availability to students. Identifying reliable sources for getting foods that students want and need is now the international student food share cabinet team's top priority. Another international student taking courses with Porter is pursuing a multisemester project investigating how students can help raise funds to keep the cabinet and refrigerator with freezer stocked into the future.

The Be'3Einooʼoonesi Cebisee (Walking Cedar Tree) Food Share Cabinet opened in the Native American Center in spring 2022. The center director helped students clear a space for it and for overflow food storage. The equity working group and student team helped purchase a second-hand wooden cabinet with drawers, cupboards, and glass doors. The Sustainability Coalition provided US$1,500 in gift cards for the aforementioned natural foods online grocer. Given the food security inequities experienced by Native American students as identified in the Taskforce survey, the Sustainability Coalition provided more than double the funding for this cabinet than others. However, the Be'3Einooʼoonesi Cebisee cabinet shelves go bare possibly even more quickly than those at the international student cabinet. Both groups lack the resources to reliably replenish them. Some personal donations have enabled a student and faculty team to restock the cabinet for now, but much more support will soon be necessary.

Finally, the team shared the guide to creating a food share cabinet with the Rainbow Resource Center and worked with the Taskforce to ensure that food security resources are clearly communicated as being available to all, without demonstrating need. The MRC has not yet launched a cabinet; the equity working group plans to follow up again soon to offer support for a cabinet and/or other preferred strategies.

Learning from Our Initial Equity Efforts

We provisionally offer the following lessons from our recent equity-specific efforts at UW as recommendations for future student food security equity work at other colleges and universities.

Build connections before and beyond the scope of a particular issue. For example, the student team and mentors did not have any previous connection with the Black student group, and we did not receive a reply to emails. Porter's previous relationship with staff and students at the Native American Center provided a clearer path for collaboration.

Consult at other tables in addition to inviting people to yours. Whereas inviting diverse representation to the general Taskforce meetings had limited or inconsistent success, the equity working group found that going to the groups to share information and listen was much more productive.

Measure the inequity in student food security. The data about overall UW food security from the 2017 survey and the equity-specific data in 2020 have been essential tools for student leaders and others to mobilize action on these issues.

Articulate the core, moral values of student food security work. While this lesson emerges more from the overall Taskforce effort, starting with explicit shared values made it much easier to introduce the equity effort, because doing so aligned with those values of dignity and respect around a sharing ethos, a systemic approach considering underlying causes, and amplifying students' voices as those affected by food insecurity for a food justice approach.

Work to put equity at the center of every food security strategy conversation. In the first years of the work, the Taskforce latched onto any approach to tackle food security that felt like it was gaining any traction to help create and institutionalize a student food security commitment at UW. For example, there was an early opportunity to open a campus pantry. While this had not been the Taskforce's top priority, nor the student body's (Schinkel et al., 2020), it was a chance to literally gain a footprint on campus and to distribute more food, and the Taskforce took it. In conversations now about strategies, the equity working group aims to make reducing the disparities in who experiences food insecurity a central focus. For example, the Taskforce is having growing success in fundraising, and the equity focus enables us to consider allocation of the funds in new ways.

Engage students in action through experiential learning. UW students' work in project-based courses, graduate and undergraduate research, and extra/co-curricular experiences has deepened their education while fostering, informing, and even enabling the Taskforce's formation and capacity for action.

Promote the resources your college or university does have, especially among students most likely to face food insecurity. Many students with whom we consulted were unaware of the meal swipe sharing, central pantry, and other campus food security programs available to them.

Name how far you still need to go while recognizing that you are on the way there as long as you keep going. Naming our efforts and celebrating each successful step we take has helped Taskforce and equity working group members cohere and stay committed even when the distance between present conditions and the vision of closing inequity gaps and ensuring full student food security seems daunting. Those goals, however far away, guide the daily decisions we make and motivate us to keep coming to the table to get a little closer to the vision than we were yesterday.

Assessing Progress and Planning Next Steps
The measurement of student food insecurity at UW is not yet precise nor frequent enough to evaluate whether and to what extent Taskforce strategies are mitigating the problem, generally, and narrowing equity gaps, specifically. From anecdotal evidence and based on the volumes of pantry, cabinet, and swipe share food that are going to students, this work is plausibly making a real impact, and certainly in some individuals' lives. However, the equity efforts are too nascent and starkly insufficient to close the gaps in who is inequitably experiencing food insecurity. And none of the strategies in play are enough to end student food insecurity at UW.

For example, the student food share cabinets mainly serve as a source of snacks and an occasional dinner. Their purpose, however, is to share food with all who would like it in a grassroots and noncentralized way, involve students in this work, and raise the profile of food insecurity as an issue on campus. They have succeeded in all three. Logically, they would be much more useful in addressing food insecurity if they were in every building frequented by students and always well stocked with nourishing food that students want. Taking the last of the lessons listed above to heart, the equity working group's next two priorities are to (1) seek sustainable resources to keep the international and Native American student food share cabinets fully stocked, and (2) return to the Rainbow Resource Center to help start and stock a cabinet to better support LGBTQIA+ students.

Facing the Scale of the Problem
Ensuring that nearly every college and university student is nourished, including at UW, is achievable. It is the right thing to do. It is also the fiscally and practically smart thing to do. Compared with public and university endowment subsidies for tuition, food is cheap and student status is temporary. Letting students go hungry or struggle to succeed in academics after long hours at low-wage jobs, or both, is a moral failure. It is also a fiscal failure, in that food insecurity threatens the returns on investments on education. If they are well nourished, students can learn well, earn higher grades, and graduate more quickly.

The gross inequities in which student groups are facing food insecurity multiply both failures, including by compounding additional systemic disadvantages faced by many of these students beyond securing enough to eat (Osiecki, 2022). The inequities in which students disproportionately experience food insecurity will continue to amplify inequities in scholastic achievement and later career opportunities. Any institution serious about improving retention and graduation rates and supporting diversity, equity, and inclusion should start with ensuring that every student is nourished.

References

Budowle, R., Farmer, I., Porter, C. M., & Preble, A. (2019). *Combating student food insecurity at the University of Wyoming: Current actions and recommended options*. https://www.uwyo.edu/food-security/_files/solutions.pdf

Budowle, R., Krszjzaniek, E., & Taylor, C. (2021). Students as change agents for community–university sustainability transition partnerships. *Sustainability*, *13*(11), Article 6036. https://doi.org/10.3390/su13116036

Chaparro, M. P., Zaghloul, S. S., Holck, P., & Dobbs, J. (2009). Food insecurity prevalence among college students at the University of Hawai'i at Mānoa. *Public Health Nutrition*, *12*(11), 2097–2103. https://10.1017/S1368980009990735

Elder, A. (2018a). *Food access and dignity among University of Wyoming students* [Honors thesis, University of Wyoming]. WyoScholar Digital Repository. https://doi.org/10.15786/13700752.v3

Elder, A. (2018b, February 16). *Despite low college price-tag, some UW students still struggle to eat* [Radio broadcast]. Wyoming Public Radio. https://www.wyomingpublicmedia.org/open-spaces/2018-02-16/despite-low-college-price-tag-some-uw-students-still-struggle-to-eat

Every Poke Nourished: University of Wyoming Food Security Resources. (n.d.). Retrieved February 20, 2023, from https://uploads.knightlab.com/storymapjs/58435e2bc6ad5d172f8c861ff45fe594/every-poke-nourished/draft.html

Haggerty, J., Chin, M. H., Katz, A., Young, K., Foley, J., Groulx, A., Pérez-Stable, E. J., Turnbull, J., DeVoe, J. E., & Uchendu, U. S. (2018). Proactive strategies to address health equity and disparities: Recommendations from a bi-national symposium. *The Journal of the American Board of Family Medicine*, *31*(3), 479–483. https://doi.org/10.3122/jabfm.2018.03.170299

Hope Center, The. (n.d.). *The Hope Center Student Basic Needs Survey*. The Hope Center for College, Community, and Justice, Temple University. Retrieved February 20, 2023, from https://hope.temple.edu/research/hope-center-student-basic-needs-survey

McCoy, M., Martinelli, S., Reddy, S., Don, R., Thompson, A., Speer, M., Bravo, R., Yudell, M., & Darira, S. (2022, January 31). Food insecurity on college campuses: The invisible epidemic. *Health Affairs Forefront*. http://doi.org/10.1377/forefront.20220127.264905

Ohio State University, The, Center for the Study of Student Life (n.d.). *Study on collegiate financial wellness*. https://cssl.osu.edu/research-projects/study-on-collegiate-financial-wellness

Osiecki, K., Barnett, J., Mejia, A., Burley, T., Nyhus, K., & Pickens, K. (2022). Studying hard while hungry and broke: Striving for academic well-being while navigating food insecurity. *Journal of Agriculture, Food Systems, and Community Development*, *11*(4), 183–195. https://doi.org/10.5304/jafscd.2022.114.011

Reeder, N., Tapanee, P., Persell, A., & Tolar-Peterson, T. (2020). Food insecurity, depression, and race: Correlations observed among college students at a university in the southeastern United States. *International Journal of Environmental Research and Public Health*, *17*(21), Article 8268. https://doi.org/10.3390/ijerph17218268

Savoie-Roskos, M. R., Hood, L. B., Hagedorn-Hatfield, R. L., Landry, M. J., Patton-López, M. M., Richards, R., Vogelzang, J. L., Qamar, Z., OoNorasak, K., & Mann, G. (2023). Creating a culture that supports food security and health equity at higher education institutions. *Public Health Nutrition*, *26*(3), 503–509. Cambridge Core. https://doi.org/10.1017/S1368980022002294

Schinkel, K. R., Budowle, R., Porter, C. M., Dai, B., Gifford, C., & Keith, J. F. (2023). Service, scholarship, and sacrifice: A qualitative analysis of food security barriers and strategies among military-connected students. *Journal of the Academy of Nutrition and Dietetics, 123*(3), 454–465. https://doi.org/10.1016/j.jand.2022.07.002

Schinkel, K. R., Keith, J. F, Budowle, R., Porter, C. M., & Dai, B. (2020). *Combatting student food security at the University of Wyoming: Spring 2020 student food insecurity survey results.* UW Food Security Taskforce. https://www.uwyo.edu/food-security/_files/documents/food_insecurity_survey_results_110821_2020.pdf

Snyder, T. D. (1993). *120 years of American education: A statistical portrait* (Report No. NCES 9344). National Center for Education Statistics, U.S. Department of Education. https://nces.ed.gov/pubs93/93442.pdf

Swipe Out Hunger. (2022). *2021–2022 progress report.* https://www.swipehunger.org/

UW Food Security Taskforce. (n.d.) https://www.uwyo.edu/food-security

Wilcox, M., Baker, C., Burish, E., Arnold, R., Cherry, M., & Moss, T. (2022). Inequitable hunger: Scope, effects, and perceptions of college student food insecurity. *Journal of Student Affairs Research and Practice*, *59*(4), 385–400. https://doi.org/10.1080/19496591.2021.1960851

Willis, D. E. (2019). Feeding the student body: Unequal food insecurity among college students. *American Journal of Health Education*, *50*(3), 167–175. https://doi.org/10.1080/19325037.2019.1590261

Yoder, H., Daley, H, & Richins, S. (n.d.). *Food share cabinet toolkit: A guide for sharing food in University of Wyoming buildings.* University of Wyoming. Retrieved February 20, 2023, from http://www.uwyo.edu/food-security/_files/documents/food-share-cabinet-toolkit_101719_final.pdf

SPECIAL SECTION SPONSORED BY

Students as co-researchers: Using participatory action research to address college food insecurity

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Abstract

Studies indicate that college students experience high rates of food insecurity. Growing awareness of food insecurity on college campuses has resulted in efforts by many institutions to address the problem through innovative programs such as food pantries, campus gardens, and educational workshops. While these initiatives play an important role in facilitating food access, they fall short of meeting students' needs. There is little research on how students' experiences or knowledge can inform strategies to address food insecurity, nor is there extensive research on how students view this issue for themselves and their peers.

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This study looks at the benefits of engaging students in participatory action research (PAR) to address college food insecurity. PAR is particularly well suited to address campus food insecurity given its tenets of research, reflection, and action. This paper examines how a PAR project, conducted throughout a semester-long community-engaged learning course at the University of San Francisco (USF), resulted in innovative strategies to address college food insecurity. This justice-based research approach deepened students' understanding of the issue and inspired them to want to change their campus food systems. Students worked to shift the narrative of food insecurity on campus away from an individual experience that carries stigma toward one of community, relationships, and collective action. This study shows the opportunities to address food insecurity not only through immediate needs-based solutions but also through a justice-based research methodology that centers student experiences and knowledge.

Introduction

Studies indicate that the prevalence of food insecurity among college students is exceptionally high. Close to half of college students in the United States experience varying degrees of food insecurity (Broton & Goldrick-Rab, 2018; Hagedorn-Hatfield et al., 2022; Nazmi et al., 2019). These numbers illuminate a critical challenge that many students face. Over the last decade, research to address this issue has increased (Hagedorn-Hatfield et al., 2022). To date, most studies use quantitative research to assess campus food insecurity, while a small body of literature employs qualitative research to garner student narratives about their lived experiences (Henry, 2020; Stebleton et al., 2020). Although colleges have taken great strides to understand and address campus food insecurity, current efforts fall short. Student-engaged research can play a key role in better understanding and addressing this problem.

While college food insecurity has become more visible, studies rarely use student-centered research methodologies to enhance the understanding of, and identify solutions to, the growing food-security problem. Student knowledge is crucial to understand how this issue affects students' lives and needs, yet the input or guidance of students is rarely part of the solution. To address this gap, I present a study from a semester-long project at the University of San Francisco (USF), where I facilitated a participatory action research (PAR) project with students to examine college food insecurity. PAR's tenets of research, reflection, and action offered an engaging and innovative approach to address food insecurity on campus, through a lens focused on justice and centered on those most impacted by the issue (Duncan-Andrade & Morrell, 2008). This study highlights important student knowledge that emerged from the PAR project and shows how student-centered research and action can advance conversations about college food insecurity.

In the literature review below, I discuss relevant research that examines the impacts of food insecurity on undergraduate students and the solutions currently in place. I also review literature that explores the potential of participatory action research to respond to a community issue and show how this methodology can be used to address college food insecurity.

Food Insecurity in Higher Education

While higher education is often assumed to offer a path for upward mobility and intellectual enrichment, the promises of college and university education are increasingly jeopardized by the fact that college students' basic needs all too frequently go unmet (Shipley & Christopher, 2018; Willis, 2019). The high costs of college tuition, compounded by the additional costs of housing, food, books, and extracurricular activities, place a daunting financial burden on students. Many students will forgo food to save money in the short term in the hope of ensuring long-term economic success with a college diploma (Broton, 2020).

College food insecurity provides a jarring illustration of the disproportionate burdens faced by students from marginalized backgrounds during their college years (Broton, 2020; Haskett et al., 2020; Shipley & Christopher, 2018; Willis, 2019). Food security studies show that students of color, LBGTQ+ students, first-generation students, students with disabilities, and low-income students experience high levels of food insecurity (Broton & Goldrick-Rab, 2018; Shipley & Christopher, 2018; Willis, 2019), as do former foster youth and students with significant family responsibilities (Broton, 2020). Willis (2019) asserts: "though students of color and lower socioeconomic students have been provided increasing access to college, they remain consistently excluded from the material and psychosocial resources that make success in college more likely" (p. 169). Exclusion from material needs, such as food, can have a huge impact on college students' health and overall experience.

The impact of food insecurity is vast and complex. Students who experience food insecurity often suffer adverse physical and mental health effects. Food insecurity can cause anxiety (Stebleton et al., 2020), shame, stigma, and embar-

rassment (Henry, 2020), and can result in students reporting a less favorable overall college experience (Macke et al., 2020). In addition, food-insecure students face higher odds of poor sleep, high stress, and uneven eating (El Zein et al., 2019). Further, suffering from food insecurity can negatively affect a student's relationship with their university (Broton & Goldrick-Rab, 2018; Haskett et al., 2020; Shipley & Christopher, 2018). To cope, students employ various strategies such as reliance on campus food resources or friends, working more, or applying for loans (Henry, 2020).

To address food insecurity, many colleges have created short-term solutions to meet students' food needs (Cady, 2020; El Zein et al., 2019; Watson et al., 2017). The most visible resource is usually a campus food pantry, which provides immediate food assistance to students. Food pantries offer shelf-stable food items and, in some instances, toiletries, refrigerated food, fruits, and vegetables. Other campus resources often include connections with local food banks and educational interventions such as cooking classes, budgeting workshops, SNAP[1] workshops, and life skills classes (Watson et al., 2017; Willis, 2019).

While food resources on campus have become more readily available, there is little research that evaluates the effectiveness of these strategies. In general, food pantries are regarded as a positive asset, yet studies suggest that campus food pantry usage is low (Buch et al., 2016; Twill et al., 2016). There are many barriers that keep students from utilizing campus resources, including a lack of knowledge about what is available, embarrassment or shame, or inconvenient hours and locations (Hagedorn-Hatfield et al., 2022).

Despite efforts to ameliorate the enormous impacts of food insecurity on college and university students, current strategies are not enough. There is a need to implement student-engaged research to address students' needs and experiences. In their literature review on college food security research, Hagedorn-Hatfield et al. (2022) state that "it is imperative that researchers consider using community-based participatory approaches that include student insight into the types of programs, interventions, and policies that would be most impactful in meeting their individual needs" (p. 5). This paper explores how participatory action research can help fill this gap.

Participatory Action Research (PAR)

Unlike traditional social science research, PAR is a collective and participatory process that uses community knowledge to understand and address a community problem. Proponents of PAR assert that community members are best equipped to address community problems based on their daily lived experiences (Rodriguez & Brown, 2009). PAR challenges dominant perceptions of knowledge, including what kinds of knowledge are deemed valuable, how knowledge is produced, and who possesses valid knowledge. PAR expands notions of expertise and asserts the validity of the everyday knowledge of community members (Koirala-Azad & Fuentes, 2009). This study demonstrates how PAR can be used to highlight the knowledge and experiences of college students to produce new ideas and strategies to address college food insecurity.

PAR seeks to establish collaborative, nonhierarchical partnerships between researcher(s) and communities to confront an issue that the communities deem important. Youth participatory action research (YPAR) refers specifically to PAR with young people. According to Rodriguez and Brown (2009), YPAR is based on three guiding principles: (1) that the research is situated in the social context and real-life issues of students; (2) that the project is genuinely collaborative in all phases, and (3) that the research aims to transform knowledge to enhance the lives of the youth themselves. YPAR fosters critical consciousness and offers young people the opportunity to engage in critical inquiry and collective action. This experience enables students to reclaim spaces where their voices have been silenced (Cammarota & Romero, 2011). I sought to follow these principles throughout the USF PAR project described below.

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[1] SNAP refers to the Supplemental Nutrition Assistance Program (formerly food stamps), a federal program that aids people who qualify as low-income. There are limitations, however, for college students to qualify for SNAP assistance.

Background on the PAR Project at USF

I implemented this PAR project during the fall 2021 semester at the University of San Francisco (USF), where I am both an adjunct professor and a graduate student. While food insecurity is prevalent among both adjunct and graduate student populations (American Federation of Teachers, AFL-CIO, 2020; Coffino et al., 2021), I decided to focus this study on the undergraduate student experience. Students have confided in me about their food struggles, and I hoped this project could highlight their experiences and help alleviate the issue while also examining the possibilities of using PAR in an undergraduate course to address a campus issue.

USF is a Jesuit Catholic liberal arts university with a population of close to 6,000 undergraduate students and around 10,000 total students (College Factual, n.d.). In 2021, 92% of first-year undergraduate students received some type of financial aid (USFCA, n.d.-a). To date, USF does not have data on the overall number of food-insecure students on campus. However, my conversations with students, faculty, and staff, along with small-scale surveys administered on campus and reports from the campus food pantry, indicate that food security is a significant campus issue. USF has food resources in place for students, including a campus food pantry, community garden, and online resources. The most visible resource is the campus food pantry that opened in 2018 and serves as a short-term solution, offering food and toiletry items to all USF students (USFCA, n.d.-b).

I chose to conduct a case study (Yin, 2009) to help understand food insecurity in depth, with attention to the contextual conditions of food insecurity at USF. I conducted this research by implementing a PAR project in two sections of an undergraduate environmental studies course. While teaching these sections, I guided the students (20 students per class) through the PAR process. Each section met once a week for three hours throughout the 15-week semester. This course also meets the university's community-engaged learning (CEL) graduation requirement, meaning that students came to the course expecting a community engagement component. In the course, students learned about pertinent food and agriculture issues before deciding collectively that our PAR project would

address food insecurity at USF. The students decided to focus solely on food insecurity and available resources at USF, rather than in the greater San Francisco community, to enhance campus food initiatives specifically.

In alignment with PAR principles, I strived to create horizontal relationships (Freire, 1970) and center students' voices so that the research was conducted with, rather than on, the students (Duncan-Andrade & Morrell, 2008). Throughout the semester, I was transparent with the students about my positionality as both researcher and professor. We discussed how student-teacher power dynamics embedded in higher education might affect our collaborative process and how the semester may differ from a more standard college course. Some of the concerns that arose as we discussed these dynamics included how students would be graded and the many obligations that students had to juggle in their own lives, making group work outside the classroom difficult to arrange. To address these issues, I purposely designed the course so that the bulk of the PAR process, including data analysis, project development and implementation, and all group work, took place during the weekly class period rather than being assigned as homework. Homework focused on personal journal reflections and responses to related literature. This would allow students to have the same amount of time and resources to put toward their projects. Throughout the semester, I continuously checked in with students about their collective and individual experiences to assess our alignment with the goals of PAR.

While all students in the two course sections participated in the PAR project, data were only analyzed from those students who opted into the analysis. The students who participated were aware that I would record and transcribe the discussion from each class period and have access to their journal responses, peer interviews, homework assignments, and group presentations to use for this study. I received IRB approval for this project at the beginning of the semester and regularly reminded the students that they could opt out of the study at any time. I also received IRB approval for students to collect data from their peers.

Between the two sections, 38 out of 40 students chose to participate in the study.

Throughout the semester, we followed the PAR cycle as outlined by Duncan-Andrade and Morrell (2008). I implemented each phase of this methodology as follows:

A. Identify the problem
Students joined this project with a wide range of understanding about food systems issues. To identify the problem for our PAR project, I gave students reading material that helped them understand food systems issues, with an emphasis on food justice (Glennie & Alkon, 2018). I used a critical food systems education (CFSE) approach wherein students "both learn to analyze their world of food production and access and take actions to change these systems" (Meek & Tarlau, 2016, p. 243). This framework helped to ground students in social justice as an integral part of analyzing food systems. I also used a critical service-learning framework designed to "encourage students to think critically about social issues and act creatively to produce change" (Mitchell, 2007, p. 101). After a review of many food systems issues, students decided collectively that our PAR project would address food insecurity among students at USF. Through class readings such as Koirala-Azad and Fuentes (2009) and Duncan-Andrade and Morrell (2008), students learned about the PAR process and how its many tenets would guide their campus food security research.

B. Research the problem
Students spent significant time engaged in two types of research. First, they conducted a literature review of existing studies about college food insecurity. Students used their literature review to understand the predominant issues related to campus food insecurity and the methods that scholars used to conduct their research. Through discussions and group work, students identified and analyzed the main themes that emerged from their literature review.

Next, the class discussed how they could collect data at USF to understand the problem at their university. The overarching questions students hoped to address were: (1) How can we improve food security on campus? and (2) How do we give a platform to food-insecure students to address this issue? (Class discussion, October 24, 2021). Given the short time frame of the semester and the desire to collect as much detailed information as possible, most of the students in the class chose to conduct 20-minute, in-depth interviews with their peers. During class, we discussed ethical research practices at length (Kretzmann & McKnight, 1996) and using a desire-based approach in our research (Tuck, 2009). Students collectively developed interview questions that would highlight their peers' experiences with food insecurity and created student consent forms. In addition, a few students who had experienced food insecurity themselves chose to write testimonials to add to the data collection. These testimonials offered important insight into how students at USF experience food insecurity.

C. Analyze the problem
After students collected data, they coded their findings from the interviews and testimonials and looked for themes. They shared their findings within small groups and identified the main themes that arose across the data. As students learned to grapple with the differences in their experiences with food security, the classroom served as a contact zone (Pratt, 1991) wherein students could work to understand and address the new information they were learning about their peers and themselves. Through class discussions and group presentations, students observed that much of the data was consistent across interviewees and testimonials. The themes that emerged from their data analysis (detailed in the results section) spoke to the specific ways that USF students experience food insecurity. This data became the central knowledge repository that students used to formulate their group action projects.

D. Develop and implement a collective plan of action
The themes that were derived from student data collection and analysis formed the basis for their action projects. Once students in the class understood their peers' experiences, they began to develop interventions to address campus food inse-

curity. These projects (detailed in the results sec-
tion of this paper) were collaborative in effort and
wide in scope. Students carried out their projects
while maintaining the goals of centering those most
vulnerable, fostering relationships, and working
toward justice.

E. Evaluate the action

Students evaluated their projects through class
conversations and input from stakeholders. At the
end of the semester, they presented their work to
administrators, faculty, staff, and fellow students.
In each of these presentations, students adapted to
their audience. For instance, with administration,
faculty, and staff, they did a PowerPoint presenta-
tion, either remotely via Zoom or in person, and
asked participants for feedback. To present their
work to students, they held a campus event where
they offered free food and distributed educational
information about campus food resources. At the
event, they talked with students about their work
and findings. In addition, students garnered feed-
back from their peers through social media posts.
At the end of the semester, students evaluated their
own work through written reflections, an exit sur-
vey, and group discussions.

Analysis of the USF PAR Project

Throughout the semester, I audio recorded and
transcribed every class session. I used these class
recordings, along with all student homework
assignments, journal entries, class presentations,
and my own reflections, as the data for my analysis.
In addition, students completed intake and exit sur-
veys with multiple-choice and long-answer ques-
tions at the start and end of the course. The ques-
tions in the surveys asked about students'
knowledge of food systems issues, their experience
with PAR, and their interest in social justice.

   At the end of the semester, I read through the
data multiple times and used coding software to
organize the data. I analyzed the data using
grounded theory methodology (Strauss & Corbin,
1998) to explore how PAR with college students
could offer an innovative, justice-based approach
to address food insecurity. The results from this
study predominantly demonstrate research from
just one course section. I chose to prioritize a

deeper analysis from one section rather than using
the vast amount of data collected across both sec-
tions. Students in the course were not involved in
the final overall analysis due to the short time
frame of the semester and the length of time it
took to analyze all the data collected. In addition,
to ensure privacy, students did not analyze one
another's homework or journal reflections.

Results

The results reflect the themes in the data that
emerged as students participated in the PAR pro-
ject. The main findings included (A) the need to
develop a collective understanding of food insecu-
rity, (B) the desire to center those most affected by
food insecurity, (C) an understanding of the com-
plexities of food insecurity, (D) the impacts of the
false perception that "everyone on campus is rich,"
(E) the stigma and shame embedded in food inse-
curity, (F) the impacts of food insecurity on stu-
dent social life and relationships, and finally, (G)
how the findings inspired student action projects
and visions for a food secure campus.

A. Developing a collective understanding of food insecurity at USF

Students' personal experiences with food security
varied greatly. At the start of the semester, I gave
students a short intake form with questions about
their awareness of food insecurity in their own lives
and on campus. I presented the United States
Department of Agriculture's (USDA) definition of
food insecurity to make sure the class started with
a common understanding of the term. The USDA
describes food insecurity as "the limited or
uncertain availability of nutritionally adequate and
safe foods or limited or uncertain ability to acquire
acceptable foods in socially acceptable ways"
(USDA, n.d.). When presented with the statement,
"I have faced food insecurity myself," five of the
19 respondents (or 26%) indicated that they had
experienced some degree of food insecurity. A
follow-up question posed the statement, "I am
aware that students on my campus are food
insecure." To this, 13 students (or 68%) had some
degree of knowledge of student food insecurity
among their peers. Finally, when asked if they
knew about the food-related resources available on

campus, close to half (47%) said they did not (survey, September 13, 2021).

Given the diversity of students' experiences with food insecurity, our project began with students grappling with this issue collectively. Our classroom community became a space in which students shared their thoughts about food security with one another and noticed their different lived experiences. For example, one student who is food insecure shared her journal response with the class:

> Multiple students do not eat throughout their day and go off one meal because that's what they can afford, and it typically is not nutritious; it is what is accessible and convenient. Or at my previous university, many students had to apply for food stamps, but there was a level of shame that went along with it. This was a conversation that was had in my first-generation college student group, or we discussed that there was a sense of pride to be able to do better than where we came from because we had access to this higher education. So, it was challenging to find ourselves struggling and finding ourselves in institutions that did not support us; to be in spaces that are meant to "further" us and still be falling behind. … I did not have enough money, I had to pay for college, and even with financial aid, I didn't have enough to afford much else, similar to many other college students. So, what had to give was the number of meals I had and the food I purchased. I know my story is not unique and because I know many of my peers experienced the same things, and research and data are documenting this issue. (Sara, college senior, September 25, 2021)[2]

The students' openness to share with one another created a space in which they could discuss the discrepancies in their life experiences. While some students identified with the findings of their research due to their personal experiences, many students had no prior knowledge about food insecurity. This contrast was present throughout the

semester. Several students commented on their shock upon learning about the extent of food insecurity on campus:

> I never knew that there are so many people in college who are suffering from food insecurity. I never suffer from this issue, so I have never paid attention to it. I think it is also because this issue is not addressed widely. I think more people should know about this issue, so people who need help can get help, and people who can help, help. (Caroline, college senior, October 25, 2021)

As students worked to understand the issue, they connected to their peers in new ways. By understanding this as a community issue, it became more relevant and pressing to the students.

B. The importance of centering on those most impacted by the issue

In their drive to address this issue, students felt it was imperative to understand their peers' experiences. They hoped that interviews with peers outside of the class, and testimonials from students in the class who had experienced food insecurity, would give them the most nuanced information about food security at USF. As one student proposed:

> I would say having students conduct a lot of the research would be most beneficial. Considering the stigma around food insecurity for many students I think it would help to have students themselves talk to other students so that we can understand the context. Maybe the food pantry hours aren't the most convenient, or maybe donating Flexi (meal plan) isn't what students want, but the only way we're going to know is by asking and having people who are food insecure making the decisions. (Tori, college junior, September 30, 2021)

Laura, a college senior, expressed the importance of involving those closest to the issue in the design of the research. She noted that centering

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[2] All names utilized are pseudonyms.

those most affected also oriented the project towards justice:

> I really like using PAR to address and learn more about social justice issues. Honoring the communities affected by social issues by giving them control and autonomy over how they are being studied, represented, and helped is a form of justice itself. (November 7, 2022)

The notion of how to center the experience of food-insecure students played a large part in the design of the data collection. Students agreed that they wanted to interview their peers who were most affected by the issue; however, several students mentioned feeling uncomfortable "seeking out" food-insecure students. They were especially worried they would make students uncomfortable due to the findings in their literature review that suggested that food-insecure students often carry shame and stigma. At the same time, they wanted to normalize the issue, and suggested that talking about food insecurity publicly may be helpful. When one student in the class expressed feeling awkward asking peers if they are food insecure, Sara replied, "people feel embarrassed to ask that question, but if you start normalizing it on campus, we just want to know purely from the point of view where you want to address the issue, not just because you are curious" (October 24, 2021). In addition, Sara suggested that students who are food insecure themselves design the interview questions, suggesting "I wanted to ask the questions that I would want to have since I have had that experience" (October 24, 2021).

As a result of these discussions, the students decided to interview their peers, regardless of their assumed food-security status. They decided that because of how widespread food insecurity has proven to be, the interviews would perhaps garner unexpected information.

C. The complexities of food insecurity

While students expected to find that their interviewees would assign themselves as either food secure or insecure, they were surprised to learn that food security is more complex than they had previously thought. In fact, they found that several students who identified as food secure at the beginning of the interview would later make comments that would insinuate struggles with food security. In our class reflection about the data collection, Grace, a college senior observed, "people didn't know how to categorize their situation. They didn't have time to make food because of work etc. but they didn't categorize themselves as food insecure" (November 1, 2021).

This theme came up several times as the group members analyzed their data. In a conversation about their interviews, John, a college senior, said, "the person I interviewed was aware of food insecurity, but didn't identify as that, but in the conversation was saying she was food insecure without saying it." Gina, also a senior, responded with, "a similar thing happened to me, so maybe we should talk about the stigma behind the term" (November 1, 2021).

As a result of their data collection, students realized that food insecurity was far more widespread and harder to categorize than they had thought. While their interviewees sometimes went without sufficient food or had limited food access, they did not think of themselves as food insecure, nor did they think the college food resources were intended for them. In a written reflection, when asked to discuss an "aha moment," Grace responded:

> One aha moment that I had so far in this semester was discovering that food insecurity is not always chronic. I thought of it as something that people always face once they become food insecure, but it can affect people only sometimes. The idea of money being "tight" or having to stretch groceries until the next payday are forms of food insecurity themselves. (November 20, 2021)

Students realized that there are many ways of being food insecure and even came to wonder if they themselves would fit this category. As Gina wrote:

> Definitely, my aha moment was during my interview when my interviewee said that if you are taking out a loan to pay for a meal plan,

then you are food insecure. I find it fascinating the way semantics change person to person; I had never thought of it that way. It makes me look more closely at my own food purchasing habits, as well as my friends and family, to see how often food insecurity is renamed. (November 20, 2021)

This nuanced perspective helped students to understand why their peers did not seek out campus resources or identify as food insecure. Students engaged in multiple conversations about how to help their community understand that there are varying levels of food insecurity and that food insecurity is a flexible category. This was also reflected in how the students' own perspectives shifted throughout the semester:

I had worked a lot with homeless people. But I had never put two and two together, it was like you are homeless or you are thriving, but I had never put two and two together that there is this middle ground, that there are people who go to college but also need help with essentials. … You would never expect it to be people in your class, I would never know that. (Cody, fourth-year college student, October 11, 2021)

These complexities also helped students in the class better understand their own experiences with food insecurity. Dave, a college senior, reflected on how the research impacted his perception of his food struggles:

I think our work has made me think about food insecurity on campus in a new way. I think I stopped seeing food insecurity less as a "daily hassle" stressor that affected me solely and more as a deeply nuanced and intricate issue that affects a wide demographic of people entirely. (November 4, 2021)

Through collective analysis and discussions, students suggested that because their peers did not identify as food insecure and saw it as a fixed identity, they were less inclined to utilize campus resources even if they did experience food insecu-

rity at times. In addition, they found that their peers did not often discuss their struggles with food due to a false perception that most students at their university are wealthy and that food insecurity brings up feelings of stigma and shame.

D. Perceptions of wealth

Students suggested multiple times that because they attend a private university, the assumption is that all students who attend the college have enough money to meet their needs. They noted that people do not discuss their financial hardships even though many students receive financial aid. Ashley, a fourth-year college student, noted, "the assumption that students at USF don't need help in terms of things like food is really strong. This new perspective really makes me understand that there can be issues in any institution no matter how prestigious they may seem" (October 29, 2021).

This same sentiment was echoed during a class discussion. Cody said, "a lot of people think, especially here, since people are paying so much, people are like oh they don't need money for something so simple as food but it's actually really prevalent." Grace responded, "I agree that a lot of people assume that if you go to a private religious college, you are good to go" (October 11, 2021). Similarly, in a written discussion board conversation, Tori wrote about how difficult the false perception of wealth can be for students who are suffering from food insecurity:

People don't talk about food insecurity. I feel like people don't really talk about money or any of the struggles that they're going through being here on campus, and when people do, nobody really takes it seriously. Everybody is like, oh well, you're at USF, so you must be able to afford it and it's just not the case. (October 28, 2021)

Students discussed at length the misperception that college students at private institutions are wealthy, and how difficult this can feel. As an outcome of this discussion, the class came to the consensus that they wanted to normalize using campus resources and talking openly about food insecurity and financial struggles.

E. Stigma and shame

Another theme that arose was students' struggles with stigma and shame. The students found that their peers carried shame about their need for food resources. As Tori explained,

> I think our role to address food insecurity is just coming together and making sure that there are practical resources for students. That starts with changing the stigma because for a lot of people it's hushed whispers and talk about how they don't have enough to eat, instead of saying, hey I don't think I'm going to be able to buy food today. We don't solve the problem until we acknowledge it out loud. (October 28, 2021)

While students hoped to encourage visibility about food insecurity to diminish the stigma, Tori also noted the complexities of talking about the issue:

> I know that part of dismantling the stigma is us being open about things like that but it's hard to be the first one and when people come from privileged areas, they don't understand the nuances of you saying, hey I can't go out there, or I don't have money this month everything went to tuition and bills. People don't necessarily get that. (October 28, 2021)

In addition, students had complicated feelings about how to reconcile their own experiences with food insecurity and felt at times like they were responsible for their own situation. As Michael, a fourth-year college student, stated:

> If I were asked by a different class, I would honestly feel embarrassed to say that my ability to get food was hindered and that's why my academic performance would be hindered. It wasn't an economic issue for me a few years ago. It was an energy issue that the cafeteria was so far away, and I had classes that were back-to-back. That was affecting if I could get food or not, but I felt like a personal blame or responsibility, it wasn't an economic thing. If I were asked if the frequency and quality of

meals affects wellbeing, then yes. But if I was asked if I could access it, I would feel a little shame. (October 21, 2021)

While students discussed different aspects of stigma and shame, the PAR process itself, oriented toward justice, destigmatized food insecurity for some students. In response to having contributed a testimonial to the collective body of work, Sara said:

> I feel that I got to dictate how my experiences were shared and framed, which is something I don't often get to do. I think it also made me feel less shameful because now I am openly discussing that I provided a testimonial with the class. I also feel it has been met with gratitude as opposed to judgment. (November 8, 2021)

Students hoped to address their peers' feelings of stigma and shame by creating campus-wide awareness about food insecurity to normalize seeking help.

F. Impacts of food insecurity on social life

In addition to feelings of stigma and shame, students found that food insecurity greatly affects the social life of their peers. They were surprised by how prevalent this theme was throughout their data collection. As Laura noted during a class discussion,

> A lot of findings throughout our interviews were about the negative impacts on mental and physical health, and social life. Social life was a big one that came up for all of us. People feel left out when they are not going out with friends. We didn't find too much literature on this, but it was big amongst all our interviews. (November 1, 2021)

From her own experiences with food insecurity, Sara responded in agreement:

> One of the things I surprised myself with is that I forgot how much it impacts social life. Having meals is such a social bonding experi-

ence. It is really isolating to not get to do that, and that is something I recognize about food insecurity, it is something where you don't get to bond with your friends. Going out to restaurants is what a lot of people do to hang out, they go out for drinks. (November 1, 2021)

This theme was very meaningful for the class. It cemented their idea that to address food insecurity, strategies needed to be inclusive, normalize discussion about the issue, create access to resources, and make food consumption a social activity. While food resources on college campuses are often distributed in private to maintain anonymity, students in the class wanted to create public food events so that their peers could share meals with one another. They hoped to create less isolation, and more connection around food security. As Andre, a college junior, stated,

> Students want to be with other students. Students want to be with friends and go out, or just to be around other people. Food insecurity can affect if people can go to a restaurant one day or have a meal at the caf [dining hall] when you can't afford to pay for that. We want events with food and socializing for everyone. (December 1, 2021)

G. Envisioning a food-secure campus

The students' nuanced understanding of food insecurity and goals to normalize and create visibility about the issue led to the development of several innovative projects. The projects centered justice, relationships, and community in all aspects of their work. The projects were directly tied to themes that emerged from their data collection and analysis. The class broke into small groups based on their interests and created the following projects:

1. A slideshow about the impacts of food insecurity at USF, which they presented to multiple stakeholders and administrators, including the provost of the university.

2. A letter sent to the USF administration that explained their frustrations with the college

meal plan and how the price and structure of the plan affect students. This letter also included ideas for a more equitable meal plan.

3. A website geared toward USF students with free food resources available both on campus and locally, advertised through a QR code distributed throughout campus.

4. A short paragraph about campus food resources that was incorporated into the Simple Syllabus platform used by professors across campus.

5. A campus club called the Food Sovereignty Coalition designed to serve as a hub for students, faculty, staff, and administrators to discuss and work on campus food issues.

6. An end-of-semester event on campus with free food, a seed and plant giveaway, and information about food resources.

When reflecting on their final projects, Grace described her group's goals as follows:

> We want people to have access, we want people to be educated and informed, we also want fiscal changes and all that goes to our desired impact; transparency, people to have more food, community building, we want people to come together around the issue and work for change. (November 22, 2021)

Each of the final projects met the students' original project questions, (1) How can we improve food security on campus? and (2) How do we give a platform to food-insecure students to address this issue? (Class discussion, October 24, 2021), but students also noted that the issue became bigger than just a class project. As Olivia, a college senior, said:

> So far, I had not thought in depth about the experiences of other students facing food insecurity at our college because sometimes you just gotta worry about yourself and your well-

being. Now though, I have found myself mentioning the pantry and garden casually in conversation to other students regardless of their assumed food insecurity status because if more people know about their options, then the resources can spread further by word of mouth. (November 1, 2021)

In a similar vein, Tami remarked:

Even if USF doesn't implement any of what we do long term, at least students can know that other people in the community are understanding and care. Being involved in the research has made me talk about the issue more with people around me. The more that I know about what my peers are doing/experiencing, the more that I want to do something about it. (November 3, 2021)

Similarly, students noted that PAR helped them recognize their collective and individual power to make change on campus. Through their work, students were able to identify stakeholders in the community who were interested in their projects and make connections with faculty, staff, and administrators. This was especially meaningful because students had expressed doubt earlier in the semester that they could impact their university. In a final class discussion, Cody spoke about the power of the project:

I just didn't really know about food insecurity or anything like that. I was just in my own little bubble, so it was good to see other people's experiences and things like that. I never got into activism or stuff like that I don't know, I was just kinda in my own bubble. So, it was cool to send the letter, I felt proud to send it, so I liked that. It opened a lot of things for me to learn. (December 6, 2021)

Jane, a second-year college student, also discussed the power students hold to make an impact at their university,

I kind of realized through participatory action research and everything, that we as students do

have the power to incite change especially as other people were saying, if we have these shared interests, we are the most effective, we haven't seen the administration do any events like this. It's very inspiring taking that inspiration, so that was a cool part for me. (December 2, 2021)

Discussion

This project demonstrates how a participatory, student-centered approach to address food insecurity can produce innovative outcomes that center student knowledge, and result in student action and advocacy. While studies point to the vast numbers of food-insecure students on college campuses (Broton & Goldrick-Rab, 2018; Hagedorn-Hatfield et al., 2022; Nazmi et al., 2019), research rarely highlights how students perceive and make sense of food insecurity or students' role in addressing the issue. This study suggests that student engagement in research, action, and reflection about food insecurity can open new possibilities for students and their engagement in campus issues.

Results from this study show that when students participate in a PAR project to address a campus issue, new ideas and solidarity can emerge. Because of this project, students engaged in conversations about experiences they rarely discussed with others, such as false perceptions of wealth on campus, issues of stigma and shame, and the impacts of food insecurity on their social experiences. By centering their own community, students obtained a nuanced understanding of campus food insecurity. This information helped students understand why their peers may not always reach out for resources and how they could help strategize around new initiatives. Consistent with other campus food-security studies, students found that although food resources might be available, their peers do not necessarily access them (Buch et al., 2016; Twill et al., 2016). The students strived to address this issue by centering what mattered most to them: authentic relationships, a nuanced understanding of food insecurity, visibility, and a community centered on justice.

Students created several strategies to shed light on this issue. Specific projects, such as the food sovereignty club, presentations to stakeholders

about their findings, and their campus-wide event were enacted to bring attention to the issue while also creating connections with others. While food pantries are often hidden and anonymous by design, students used their research and action projects to make the issue more visible and help their peers see that the campus community is invested in food security for all. Students high-lighted the social nature of food and eating and came up with community-based, non-stigmatizing ways to make free food available and enjoyable. In addition, throughout this project, students shared their work with representatives from the food pantry, the campus garden, and other campus stakeholders to support preexisting programs and create meaningful connections with those doing similar work. The students also created initiatives they hoped would institutionalize change within USF, such as an addition about food-security resources to the Simple Syllabus and a letter that addressed issues in the campus meal plan. In alignment with the goals of YPAR (Cammarota & Romero, 2011), this research centered students in the social context of the issue, was collaborative in all phases, and transformed students' knowledge to enhance their lives.

At the end of the semester, the students dis-cussed the limitations of the project. The main lim-itation was the short time frame of a semester. Sev-eral students were interested in continuing their work into the following semester, but only a few ended up with the time to continue to pursue their projects. In addition, had they had more time, stu-dents would have been interested in creating a campus-wide survey to understand how food inse-curity varied by student demographics.

Conclusion

This study demonstrates how students make sense of food insecurity and offers insights into the com-plexities of students' lived experiences with this issue. While research shows that food insecurity on campus is a pressing issue, this study expands the current literature by using community-engaged, participatory research methods. This project demonstrates the important ways in which student-centered research can lead to innovative projects and help build new knowledge. Staff and faculty

can create more just and equitable approaches to food insecurity when centering students in the pro-cess. To address food insecurity on campus, it is important that campus educators and administra-tors consider the following:

1. There is a need to address food insecurity through collaborative, participatory-based research methodologies with students to truly understand students' experiences. This process centers students' voices and experiences in the development of campus-wide strategies. This approach can result in solutions that are embedded in students' desires and visions for their community.

2. Food security research can happen in the context of an academic class. This project took place during one semester in a college course; as such, students learned about this issue in a broader academic framework and collectively worked for change. The curriculum and course design supported the use of PAR. In addition, critical education approaches, such as critical food studies education (Meek & Tarlau, 2016) or critical service learning (Mitchell, 2007), can offer ways to analyze food insecurity within a larger educational framework.

3. Relationships are essential. Students repeatedly emphasized that this project helped them feel connected to their peers and helped them believe that people on campus want to enact change. Students centered relationships and community in their research, action projects, and reflections. Relationships were key to how they conceptualized food security on campus. In creating initiatives to address food insecurity, practitioners can consider how to meet students' immediate food needs while also fostering student connections to their campus communities.

4. Students may experience food challenges but still not identify as food insecure. The students who participated in this study saw that while the USDA presents a definition of food insecurity, their peers experience food insecurity in ways

that do not always match this classification. As such, students might not seek out resources or feel they are intended for them. Research is crucial to understand how food insecurity manifests itself at various colleges and how students do or do not identify as food insecure. Students involved in the study suggested that colleges should encourage their community to understand the nuances of food insecurity so that all students feel welcome to utilize resources.

5. Participatory action research can help students work for justice. The results of this project showed that students who participated in the PAR process were driven to make change on campus. Once students gained a nuanced understanding of how food insecurity affected their peers, they wanted to be involved in the solution. Using PAR to work through this issue gave students a community with whom they could engage in action for justice on campus.

This study provides insights into the potential for collaborative, student-centered research as a strategy to address college food insecurity. The results from this study show that PAR can inspire students to work toward justice, understand the experiences of their peers, and create meaningful collaborations across campus. This study serves as an example of how students can build community and center their peers through research and action. While this study looks at food insecurity in particular, this framework can, and should be, applied to a myriad of campus issues. PAR proved to be a practical means for addressing campus issues and empowering students throughout the process.

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References

American Federation of Teachers, AFL-CIO. (2020). *An army of temps: AFT 2020 adjunct faculty quality of work/life report*. https://www.aft.org/sites/default/files/media/2020/adjuncts_qualityworklife2020.pdf

Broton, K. M. (2020). Food insecurity in higher education. In K. M. Broton & C. L. Cady (Eds.), *Food insecurity on campus: Action and intervention* (pp. 12–32). John Hopkins University Press.

Broton, K. M., & Goldrick-Rab, S. (2018). Going without: An exploration of food and housing insecurity among undergraduates. *Educational Researcher*, *47*(2), 121–133. https://doi.org/10.3102/0013189X17741303

Buch, K., Langley, S., Johnson, T., & Coleman, N. (2016). A university-community partnership to combat food insecurity among college students. *Partnerships: A Journal of Service-Learning and Civic Engagement*, *7*(1), 16–26. http://libjournal.uncg.edu/prt/article/view/1332

Cady, C. L. (2020). If not us, who? Building national capacity to address student food insecurity through CUFBA. In K. M. Broton & C. L. Cady (Eds.), *Food insecurity on campus* (pp. 33–53). John Hopkins University Press.

Cammarota, J., & Romero, A. (2011). Participatory action research for high school students: Transforming policy, practice, and the personal with social justice education. *Educational Policy*, *25*(3), 488–506. https://doi.org/10.1177/0895904810361722

Coffino, J. A., Spoor, S. P., Drach, R. D., & Hormes, J. M. (2021). Food insecurity among graduate students: Prevalence and association with depression, anxiety and stress. *Public Health Nutrition, 24*(7), 1889–1894. https://doi.org/10.1017/S1368980020002001

College Factual. (n.d.). *USFCA demographics & diversity report*. Retrieved July 27, 2022, from https://www.collegefactual.com/colleges/university-of-san-francisco/student-life/diversity/

Duncan-Andrade, J. M. R., & Morrell, E. (2008). *The art of critical pedagogy: Possibilities for moving from theory to practice in urban schools*. Peter Lang. https://doi.org/10.3726/b12771

El Zein, A., Shelnutt, K. P., Colby, S., Vilaro, M. J., Zhou, W., Greene, G., Olfert, M. D., Riggsbee, K., Morrell, J. S., & Mathews, A. E. (2019). Prevalence and correlates of food insecurity among U.S. college students: A multi-institutional study. *BMC Public Health*, *19,* Article 660. https://doi.org/10.1186/s12889-019-6943-6

Freire, P. (1970). *Pedagogy of the oppressed.* Continuum.

Glennie, C., & Alkon, A. H., (2018). Food justice: Cultivating the field. *Environmental Research Letters, 13*(7), Article 073003. https://doi.org/10.1088/1748-9326/aac4b2

Goldrick-Rab, S., Baker-Smith, C., Coca, V., Looker, E., & Williams, T. (2019). *College and university basic needs insecurity: A national #RealCollege survey report.* The Hope Center. https://www.insidehighered.com/sites/default/server_files/media/HOPE_realcollege_National_report_EMBARGOED%20UNTIL%20APRIL%2030%203%20AM%20EST%20(1).pdf

Hagedorn-Hatfield, R. L., Hood, L. B., & Hedge, A. (2022). A decade of college student hunger: What we know and where we need to go. *Frontiers in Public Health, 10,* Article 827724. https://doi.org/10.3389/fpubh.2022.837724

Haskett, M. E., Kotter-Grühn, D., & Majumder, S. (2020). Prevalence and correlates of food insecurity and homelessness among university students. *Journal of College Student Development, 61*(1), 109–114. https://doi.org/10.1353/csd.2020.0007

Henry, L. (2020). *Experiences of hunger and food insecurity in college.* Palgrave Pivot. https://doi.org/10.1007/978-3-030-31818-5

Koirala-Azad, S., & Fuentes, E. (2009). Introduction: Activist scholarship—Possibilities and constraints of participatory action research. *Social Justice*, *36*(4), 1-5. https://www.jstor.org/stable/29768557

Kretzmann, J., & McKnight, J. P. (1996). Asset-based community development. *National Civic Review, 85*(4), 23–29. https://doi.org/10.1002/ncr.4100850405

Macke, C., Averitt Taylor, J., & Ozaki, R. (2020). Food insecure students' perceptions of campus climate: Implications for social work educators and practitioners. *Journal of Evidence-Based Social Work*, *17*(2), 237–252. https://doi.org/10.1080/26408066.2020.1723771

Meek, D., & Tarlau, R. (2016). Critical food systems education (CFSE): Educating for food sovereignty. *Agroecology and Sustainable Food Systems, 40*(3)*,* 237–260. https://doi.org/10.1080/21683565.2015.1130764

Mitchell, T. D. (2007). Critical service-learning as social justice education: A case study of the Citizen Scholars Program. *Equity & Excellence in Education, 40*(2), 101–112. https://doi.org/10.1080/10665680701228797

Nazmi, A., Martinez, S., Byrd, A., Robinson, D., Bianco, S., Maguire, J., Crutchfield, R. M., Condron, K., & Ritchie, L. (2019). A systematic review of food insecurity among US students in higher education. *Journal of Hunger & Environmental Nutrition*, *14*(5), 725– 740. https://doi.org/10.1080/19320248.2018.1484316

Pratt, M. L. (1991). Arts of the contact zone. *Profession, 1991,* 33–40. https://www.jstor.org/stable/25595469

Rodriguez, L. F., & Brown, T. M. (2009). From voice to agency: Guiding principles for participatory action research with youth. *New Directions for Youth Development*, *2009*(123), 19–34. https://doi.org/10.1002/yd.312

Shipley, G., & Christopher, M. (2018). Food insecurity on college campuses: Collateral damage of a societal crisis. *Journal of College and Character, 19*(4), 309–315. https://doi.org/10.1080/2194587X.2018.1517652

Stebleton, M. J., Lee, C. K., & Diamond, K. K. (2020). Understanding the food insecurity experiences of college students: A qualitative inquiry. *The Review of Higher Education, 43*(3), 727–752. https://doi.org/10.1353/rhe.2020.0005

Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (2nd ed.). Sage.

Tuck, E. (2009). Suspending damage: A letter to communities. *Harvard Educational Review, 79*(3)*,* 409–428. https://doi.org/10.17763/haer.79.3.n0016675661t3n15

Twill, S. E., Bergdahl, J., & Fensler, R. (2016). Partnering to build a pantry: A university campus responds to student food insecurity. *Journal of Poverty*, *20*(3), 340–358. https://doi.org/10.1080/10875549.2015.1094775

U.S. Department of Agriculture [USDA]. (n.d). *Food security in the U.S.* Retrieved on October 13, 2022, from https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-u-s/measurement/

University of San Francisco [USFCA]. (n.d-a). *Financial aid.* Retrieved on July 28, 2022, from https://www.usfca.edu/financial-aid

USFCA. (n.d-b). *USF Food Pantry.* Retrieved on July 28, 2022, from https://myusf.usfca.edu/food-pantry

Watson, T. D., Malan, H., Glik, D., & Martinez, S. M. (2017). College students identify university support for basic needs and life skills as key ingredient in addressing food insecurity on campus. *California Agriculture, 71*(3), 130–138. https://doi.org/10.3733/ca.2017a0023

Willis, D. E. (2019). Feeding the student body: Unequal food insecurity among college students. *American Journal of Health Education, 50*(3), 167–175. https://doi.org/10.1080/19325037.2019.1590261

Yin, R. K. (2009). *Case study research: Design and methods* (4th ed.). Sage.

Food insecurity and utilization of campus food resources differ by demographic and academic group

SPECIAL SECTION SPONSORED BY

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Abstract
Food insecurity is a major challenge for many college students, negatively affecting their well-being and academic success. To address the challenge, universities are implementing food resources to provide free access to food; however, little is known about how students' identities affect their utilization of these resources. This study analyzed the relationships among food insecurity, campus food resource participation, and student demographic and academic identity. Survey data were collected from a representative sample (*n*=1,190) of undergraduate students at the University of California (UC), Davis. Analyses were conducted using

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Conflicts of Interest
The authors have no conflicts of interest to disclose.

chi-square tests of independence and logistic regression to assess factors related to food insecurity and campus food resource participation. The results indicate that transfer students are 84% more likely to experience food insecurity, but 39% less likely to use campus food resources. Both first-generation and fourth- year students disproportionately experience food insecurity and utilize campus food resources more. Latino(a)/Chicano(a)/Hispanic students are twice as likely to experience food insecurity and 49% more likely to use food resources than white/European American students. These results demonstrate that student identity intersects with food insecurity and access in the college environment. These findings can guide recommendations for improving and expanding campus food resources by utilizing equitable outreach strategies that build a support network of food access while reflecting the diverse needs of student populations.

Keywords
Food Insecurity, University Students, Campus Food Pantry, Higher Education

Introduction and Literature Review
While the university is a place for individuals to achieve higher educational goals and for some is an integral steppingstone on the path to their chosen career fields, it can also be rife with problems such as housing insecurity, financial stress, and mental health difficulties (Britt et al., 2017; Broton & Goldrick-Rab, 2018; Goldrick-Rab, Richardson, et al., 2018; Oswalt et al., 2020; Robb, 2017). An increasingly visible issue experienced by students across university campuses in the U.S. is food insecurity (Bruening et al., 2017; Nazmi et al., 2019).

Food insecurity is defined by the U.S. Department of Agriculture as "limited or uncertain access to adequate food" with varying levels of food security that range from very low to high (USDA Economic Research Service, 2022). University students experience low and very low food security, collectively defined as food insecurity, far more frequently than the U.S. general population, with one systematic review reporting that 43.5% of college students were experiencing some form of food insecurity, nearly four times the prevalence of food

insecure households in the U.S. (Nazmi et al., 2019; U.S. Government Accountability Office [GAO], 2018; USDA Economic Research Service, 2022).

The high prevalence of campus food insecurity can be observed through its detrimental effects on overall student well-being and achievement. It is associated with diminished academic performance, lower grade point average (GPA), and poor mental and physical health (Becerra & Becerra, 2020; Martinez et al., 2019, 2020; Payne-Sturges et al., 2018; Weaver et al., 2020). In addition, other factors associated with student food insecurity including lack of sleep, lower fruit and vegetable consumption, and fewer days of moderate to vigorous exercise further indirectly contribute to higher body mass index (BMI) and poor physical health (Martinez et al., 2019). Thus, food insecurity compounds in many ways to negatively affect university students.

Food insecurity often intersects with student demographics. Demographic characteristics such as race and ethnicity are associated with increased likelihood of student food insecurity, with Black, Latino(a), and other marginalized groups more likely to report experiencing food insecurity (Camelo & Elliott, 2019; Martinez et al., 2018; Reeder et al., 2020; UC Global Food Initiative, 2017). A study found that Latino(a) students—students identified as Latino(a)/Chicano(a)/Hispanic—are twice as likely to be food insecure as white students (DeBate et al., 2021). Receiving need-based financial aid, living outside the parents' home, and experiencing childhood food insecurity also increase a student's risk for food insecurity (Martinez et al., 2018). Increased accrual of debt has been associated with increased risk of experiencing food insecurity in students (Knol et al., 2018). In addition, food insecurity has been found to be correlated with housing and financial insecurity, indicating how experiencing disadvantages in one area can overlap with food insecurity to create further challenges (Leung et al., 2021).

Despite knowledge of these predictors, research is still limited available on how the demographic identities of students, especially admission type, such as nontraditional (25 or older), transfer, first-generation, juniors and seniors, undocumented, Deferred Action for Childhood Arrivals

(DACA)-eligible, and international or graduate, intersect with the challenge of campus food insecurity (Beam, 2020; Camelo & Elliott, 2019; Coffino et al., 2021; Klobodu et al., 2021; Soldavini et al., 2019; Soldavini & Berner, 2020; UC Admissions, n.d.; UC Global Food Initiative, 2017). Such types, particularly transfer and first-generation students, are known to experience distinct challenges transitioning to and navigating the college environment (Daddona et al., 2021; Gibbons et al., 2019; Nuñez & Yoshimi, 2017; Zilvinskis & Dumford, 2018). Qualitative studies of nontraditional and DACA-eligible students have discussed the unique ways in which they experience and navigate food insecurity; prioritizing food over other basic needs and expenses, rationing food, relying on the support of friends and family, and choosing foods out of cost convenience over healthfulness are strategies that have been reported (Beam, 2020; Klobodu et al., 2021). Such studies demonstrate that marginalized academic groups are facing food insecurity, but fail to identify how their experience, especially regarding food resources, compares with nonmarginalized students.

Given the high prevalence of food insecurity in the college environment and its relevance to student success and well-being, universities are seeking solutions to food insecurity by implementing campus food resources like food pantries (Becerra & Becerra, 2020; College & University Food Bank Alliance, n.d.; Martinez et al., 2019, 2020; Nazmi et al., 2019; Payne-Sturges et al., 2018; Weaver et al., 2020). Campus food pantries provide students with immediate access to food, making them a potential source for supporting students and alleviating food insecurity (Esaryk et al., 2021; Goldrick-Rab, Cady, et al., 2018). This strategy is increasingly employed by universities to address the need for food access and is being used by students more frequently (Esaryk et al., 2021; Gammon et al., 2021; Weaver et al., 2021). For example, all ten campuses in the UC system have campus food pantries, basic needs centers to support student food security, and annual basic needs budgets that each campus utilizes with its own tailored approach (UC Basic Needs Initiative, n.d.). However, a study conducted at University of Florida showed that while over a third of students reported being food insecure,

only 38% utilized the campus food pantry, raising concerns as to how effective the campus current practice is (El Zein et al., 2018). Recent literature has called for further evaluation of campus food resource participation and the effectiveness of food pantries in addressing food insecurity (Davis et al., 2020; Esaryk et al., 2021; Goldrick-Rab, Cady, et al., 2018). Given the current gaps in understanding food insecurity, as well as the limited literature on campus food resources generally, it would be beneficial to utilize student demographic and food resource usage data to inform current and future campus food resource implementation efforts, especially as they pertain to various marginalized demographic and academic groups.

This study aims to analyze the relationships between food insecurity, food resource participation, and demographic and academic groups in the student population at a large, 4-year research university, University of California, Davis (UC Davis). UC Davis has multiple campus food resources available for students, including, but not limited to: Aggie Compass, the campus basic needs center offering food, housing, and financial support to students; the ASUCD [Associated Students, University of California, Davis] Pantry, a student-run food pantry providing free perishable and nonperishable food as well as free hygienic and menstrual products to students as well as staff and faculty; and Fruit and Veggie Up, an Aggie Compass program distributing fresh produce free to students (Aggie Compass Basic Needs Center, 2022; ASUCD Pantry, 2022). Given that marginalized students experiencing food insecurity may have a greater need, and that there are campus food resources present at UC Davis to support such students experiencing food insecurity, it was hypothesized that marginalized academic and demographic groups would both experience greater food insecurity and participate in campus food resources more compared to their less marginalized/more traditional student counterparts (Camelo & Elliott, 2019; DeBate et al., 2021; Martinez et al., 2018; Reeder et al., 2020; UC Global Food Initiative, 2017).

Applied Research Methods
The current study is a secondary analysis of data previously collected and described elsewhere

(Loofbourrow et al., 2021). The methodology of the study is described briefly below.

Questionnaire Development

Questions relating to student participation in campus food access resources, demographic characteristics, and other student lifestyle factors were developed with the help of a panel of content and survey design experts from UC Davis (Loofbourrow et al., 2020). After edits were made to the questionnaire for content and clarity, the USDA 10-item Adult Food Security Survey Module (AFSSM) was added to assess student food security status (USDA Economic Research Service, 2012). The final questionnaire contained 68 items; however, because of the use of skip logic, not all items were seen by all participants.

Sample and Data Collection

A representative sample of 10,000 students was selected from a complete list of 39,629 students at UC Davis; 5,000 were representative of the overall university student body and 5,000 were selected based on Pell Grant (a federal grant for students from low-income backgrounds) recipient status. The contact list of students was provided to the research team by the UC Davis Office of Budget and Institutional Analysis.

Distribution

The final questionnaire was administered via Qualtrics software at the beginning of the 2020 Winter Quarter (January 2020) using a modified Tailored Design Method (Dillman et al., 2008). During the second week of the quarter, selected students were sent an email notification containing an informed consent letter, the study information, and notification that they would receive a personalized link to the questionnaire the following week. A follow-up email containing the questionnaire link and informed consent letter was sent one week later, followed by two weekly reminder emails for students who did not complete the questionnaire. Within the questionnaire, students consented to participate by providing their university-issued identification number. Students who did not provide their ID number were not included in the final analysis. Students who completed the questionnaire within

three weeks of receiving their personalized link were given a US$5 gift card incentive. All responses were collected by February 12, 2020.

Independent Variables of Current Study

Demographic and academic characteristics of interest included student race/ethnicity, first-generation student status (students whose parent/guardian(s) did not complete a 4-year degree), transfer student status (students coming to the university from another 2- or 4-year institution), low-income status (students from a household with earnings <185% of federal poverty guidelines), U.S. citizenship and in-state residency, academic class level, and financial aid receipt.

Dependent Variables of Current Study

Primary outcomes of interest were food security status as measured by the USDA AFSSM and self-reported food access resource participation. AFSSM scores respondents from 0−10 as a continuous measure of food insecurity. Scores of 0 are considered "high food security"; scores of 1−2 are considered "marginal food security"; scores of 3−5 are classified as "low food security"; and scores of 6≥ are classified as "very low food security." To use a binary logistic regression model for analysis, high food security and marginal food security were collapsed into one category ("food secure") and low food security and very low food security were collapsed into a second category ("food insecure"). Food access resource participation included any use of the campus basic needs center (Aggie Compass), campus food pantry (ASUCD Pantry), and the fresh fruit and vegetable distribution program (Fruit and Veggie Up).

Data Analysis of Current Study

Demographic and student characteristics, financial aid receipt, employment status, and food security status were analyzed using a chi-square test for independent variables. Logistic regression was performed to determine whether demographic characteristics including transfer student status, first-generation student status, low-income status, race/ethnicity, academic class level, and financial aid were associated with food security status. Logistic regression was performed to determine whether

these demographic and academic characteristics were associated with food access resource participation.

Results

Of the representative sample, 1,526 students responded to the survey with a response rate of 15%. Of the 1,526 respondents, 100 students were removed from the analytical sample as they did not provide consent for participation and 18 were excluded due to incomplete food security data, resulting in a sample of 1,408 students. From this sample, graduate students were omitted from analysis,

resulting in a final analytic sample of 1,190 undergraduate students.

Of the total analytic sample, 45% of students were currently experiencing some level of food insecurity (Table 1). Chi-square analysis of independence showed that transfer students disproportionately experienced more food insecurity than students admitted as freshmen ($\chi^2 = 16.08$ ($p<0.001$); Table 1). First-generation students and low-income students disproportionately experienced food insecurity more (First-Generation: $\chi^2 = 60.41$ ($p<0.001$); Low-Income: $\chi^2 = 18.81$ ($p<0.001$); Table 1). There were no statistically significant differ-

Table 1. Descriptive Characteristics of Sample and Chi-Square Test of Food Security Status

	Total n (%)	Food Secure n (%)	Food Insecure n (%)	χ^2 (p-value)
Total Sample	1190 (100)	655 (55.0)	535 (45.0)	
Transfer **	241 (20.3)	105 (43.7)	136 (25.4)	16.08 (<0.001)
First-Generation **	554 (53.3)	245 (37.4)	309 (66.7)	60.41 (<0.001)
Low-Income **	488 (41.0)	232 (35.4)	256 (47.9)	18.81 (<0.001)
U.S. Citizen	1044 (87.7)	565 (86.3)	479 (89.5)	2.93 (0.09)
California Resident	1082 (90.9)	587 (89.6)	495 (92.5)	3.01 (0.08)
Class Level				
Freshman (1st Year)	239 (20.1)	139 (21.2)	100 (18.7)	1.17 (0.28)
Sophomore (2nd Year)	240 (20.2)	145 (22.1)	95 (17.8)	3.51 (0.06)
Junior (3rd Year)**	337 (28.3)	201 (30.7)	136 (25.4)	4.02 (0.04)
Senior (4th Year)**	374 (31.4)	170 (26.0)	204 (38.1)	20.26 (<0.001)
Race/Ethnicity				
American Indian/Alaska Native	7 (0.6)	3 (0.5)	4 (0.7)	0.42 (0.52)
Black/African American	36 (3.0)	16 (2.4)	20 (3.7)	1.68 (0.19)
East Asian**	276 (23.2)	193 (29.5)	83 (15.5)	32.18 (<0.001)
Latino(a)**	354 (29.7)	138 (39.0)	216 (40.4)	52.51 (<0.001)
Middle Eastern/South Asian	70 (5.9)	42 (6.4)	28 (5.2)	0.74 (0.39)
Native Hawaiian/Pacific Islander	8 (0.7)	3 (0.5)	5 (0.9)	1.00 (0.32)
Other Asian	36 (3.0)	16 (2.4)	20 (3.7)	1.68 (0.19)
Southeast Asian	122 (10.3)	69 (56.6)	53 (9.9)	0.13 (0.72)
White**	260 (21.8)	168 (25.6)	92 (17.2)	12.32 (<0.001)

** Significant differences

ences in the experience of food insecurity by California residency and U.S. citizenship status. Both juniors and seniors had a significant difference in food security status, with senior students making up a greater proportion of students experiencing food insecurity (Junior: $\chi^2 = 4.02$ ($p=0.04$); Senior: $\chi^2 = 20.26$ ($p<0.001$); Table 1). Significant differences were not observed in freshmen and sophomore students. In terms of race/ethnicity, East Asian students (students identified as Chinese, Korean, or Japanese) and white students (students identified as white/European American) disproportionately experienced less food insecurity (East

Asian: $\chi^2 = 32.18$ ($p<0.001$); white: $\chi^2 = 12.32$ ($p<0.001$); Table 1). Latino(a) students disproportionately experienced more food insecurity (Latino(a): $\chi^2 = 52.51$ ($p<0.001$); Table 1). Significant differences were not observed in all other racial/ethnic demographics.

In observing differences in food resource use, a chi-square analysis of independence indicated that students experiencing food insecurity disproportionately utilized campus food resources more (Food Insecure: $\chi^2 = 27.46$ ($p<0.001$); Table 2). More than 1/3 (35.5%) of students experiencing food insecurity did not participate in campus food

Table 2. Chi-Square Test of Campus Food Resource Participation

	Total n (%)	Use Food Resources n (%)	Do Not Use Any Food Resources n (%)	χ^2 (p-value)
Overall Sample	1,097 (100)	621 (56.6)	476 (43.4)	
Food Insecure**	488 (44.5)	319 (51.4)	169 (35.5)	27.46 (<0.001)
Transfer	225 (20.5)	124 (20.0)	101 (21.2)	0.26 (0.61)
First-Generation**	554 (53.3)	339 (57.0)	215 (48.4)	7.47 (0.01)
Low-Income	451 (41.1)	271 (43.6)	180 (37.8)	3.78 (0.05)
US Citizen**	967 (88.1)	558 (89.9)	409 (85.9)	3.98 (0.05)
CA Resident**	1,000 (91.2)	576 (92.8)	424 (89.1)	4.52 (0.03)
Class Level				
Freshman (1st Year)**	218 (19.9)	90 (14.5)	128 (26.9)	26.01 (<0.001)
Sophomore (2nd Year)	214 (19.5)	116 (18.7)	98 (20.6)	0.62 (0.429)
Junior (3rd Year)	316 (28.8)	180 (29.0)	136 (28.6)	0.02 (0.881)
Senior (4th Year)**	349 (31.8)	235 (37.8)	114 (23.9)	23.97 (<0.001)
Race/Ethnicity				
American Indian/Alaska Native**	6 (0.5)	1 (0.2)	5 (1.1)	3.92 (0.05)
Black/African American	32 (2.9)	23 (3.7)	9 (1.9)	3.13 (0.08)
East Asian	256 (23.3)	153 (24.6)	103 (21.6)	1.36 (0.24)
Latino (a)	320 (29.2)	191 (30.8)	129 (27.1)	1.74 (0.19)
Middle Eastern/South Asian**	66 (6.0)	27 (4.3)	39 (8.2)	7.05 (0.01)
Native Hawaiian/Pacific Islander	7 (0.6)	4 (0.6)	3 (0.6)	0.00 (0.98)
Other Asian	36 (3.3)	24 (3.9)	12 (2.5)	1.53 (0.22)
Southeast Asian	112 (10.2)	70 (11.3)	42 (8.8)	1.76 (0.18)
White**	243 (22.2)	116 (18.7)	127 (26.7)	10.00 (0.002)

*Significant differences

resources (Food Insecure: $\chi^2 = 27.46$ ($p<0.001$); Table 2). First-generation students disproportionately used campus food resources more (First-Generation: $\chi^2 = 7.47$ ($p=0.01$); Table 2). Additionally, students with U.S. citizenship and students with California residency made up significantly greater proportions of the population that does not use campus food resources (U.S. Citizenship: $\chi^2 = 3.98$ ($p=0.05$); CA Residency: $\chi^2 = 4.52$ ($p=0.03$); Table 2). There were no significant differences in food resource use by transfer and low-income students. With respect to class level, a significant difference was noted in freshmen and senior students. Freshmen students disproportionately use campus food resources less while senior students disproportionately use resources more (Freshmen: $\chi^2 = 26.01$ ($p<0.001$); Senior: $\chi^2 = 23.97$ ($p<0.001$); Table 2).

There were no statistically significant differences between sophomore students and junior students in food resource use. Regarding race/ethnicity, American Indian/Alaska Native students, Middle Eastern/South Asian students (students identified as East Indian/Pakistani), and white students disproportionately do not use campus food resources (American Indian/Alaska Native: $\chi^2 = 3.92$ ($p=0.05$); Middle Eastern/South Asian: $\chi^2 = 7.05$ ($p=0.01$); white: $\chi^2 = 10.00$ ($p=0.002$); Table 2). All other student racial/ethnic demographics did not exhibit significant differences in food access resource participation.

In a logistic regression analysis of food insecurity, transfer students were significantly more likely to experience food insecurity compared to non–transfer students (OR: 1.84, CI: 1.27-2.68, $p=0.001$;

Table 3. Student Characteristics' Associations with Food Insecurity Using Logistic Regression

	Odds Ratio (OR)	95% Confidence Interval (CI)	*p*-value
Transfer** (Yes; Ref: No)	1.84	1.27–2.68	0.001
First-Generation ** (Yes; Ref: No)	1.79	1.31–2.46	<0.001
Low-Income (Yes; Ref: No)	1.11	0.82–1.52	0.50
US Citizen (No; Ref: Yes)	0.91	0.51–1.62	0.75
CA Resident (No; Ref: Yes)	0.85	0.44–1.64	0.62
Class Level			
Freshman (1st Year)	0.79	0.51–1.22	0.28
Sophomore (2nd Year)	0.71	0.47–1.08	0.11
Junior (3rd Year)**	0.58	0.40–0.81	0.002
Senior (4th Year)	1	Reference	
Race/Ethnicity			
American Indian/Alaska Native	2.42	0.36–16.10	0.36
Black/African American	1.90	0.83–4.34	0.13
East Asian	0.74	0.48–1.13	0.16
Latino(a)**	2.12	1.41–3.18	<0.001
Middle Eastern/South Asian	1.38	0.74–2.58	0.31
Native Hawaiian/Pacific Islander	1.02	0.13–7.83	1.00
Other Asian **	2.09	0.97–4.50	0.06
Southeast Asian	1.19	0.71–2.00	0.51
White	1	Reference	

** Significant differences

Table 3). First-generation students had higher odds of experiencing food insecurity when compared to non–first-generation students (OR: 1.79, CI: 0.20-0.96, $p<0.001$; Table 3). Low-income status, U.S. citizenship status, and California residency status did not significantly increase the odds of experiencing food insecurity. In terms of class level, junior students had significantly lower odds of experiencing food insecurity compared to senior students (OR: 0.58, CI: 0.40-0.81, $p=0.002$; Table 3). Being a freshman or sophomore was not significantly associated with experiencing food insecurity. Latino(a) students and other Asian students had more than twice the odds of experiencing food insecurity compared to white students (Latino(a): OR: 2.12, CI: 1.41-3.18, $p<0.001$; Other Asian: OR: 2.09, CI: 0.97-4.50, $p=0.06$; Table 3). All other student racial/ethnic demographics were not significantly associated with experiencing food insecurity when compared to white students.

In logistic regression analysis, students experiencing food insecurity were more significantly likely to use food resources compared to those who were food secure (OR: 1.81, CI: 1.37-2.40, $p<0.001$; Table 4). Transfer students were less likely to use food resources compared to non–transfer students (OR: 0.61, CI: 0.42-0.88, $p=0.01$; Table 4). Being a first-generation student or low-income student was not significantly associated with using food resources. U.S. citizenship or California residency was not significantly associated with using food resources. Compared to senior students, freshmen and sophomore and junior students were each less likely to use food resources (Freshmen: OR: 0.28, CI: 0.18-0.41, $p<0.001$; Sophomore: OR: 0.51, CI: 0.34-0.76, $p=0.001$; Junior: OR: 0.69, CI: 0.49-0.97, $p=0.03$; Table 4). Black/African American students were more than three times more

Table 4. Prediction of Food Resource Use by Logistic Regression

	Odds Ratio (OR)	95% Confidence Interval (CI)	*p*-value
Food Insecure** (Yes; Ref: No)	1.81	1.37–2.40	<0.001
Transfer** (Yes; Ref: No)	0.61	0.42–0.88	0.01
First-Generation (Yes; Ref: No)	1.15	0.84–1.57	0.38
Low-Income (Yes; Ref: No)	1.00	0.74–1.36	0.98
US Citizen (No; Ref: Yes)	1.35	0.76–2.36	0.30
CA Resident (No; Ref: Yes)	1.28	0.68–2.43	0.45
Class Level			
Freshman (1st Year)**	0.28	0.18–0.41	<0.001
Sophomore (2nd Year)**	0.51	0.34–0.76	0.001
Junior (3rd Year)**	0.69	0.49–0.97	0.03
Senior (4th Year)	1	Reference	
Ethnicity			
American Indian/Alaska Native	0.26	0.03–2.49	0.24
Black/African American**	3.240	1.34–7.82	0.01
East Asian**	2.070	1.39–3.08	<0.001
Latino(a)**	1.490	1.01–2.21	0.05
Middle Eastern/South Asian	0.894	0.49–1.62	0.71
Native Hawaiian/Pacific Islander	5.121	0.53–49.31	0.16
Other Asian	2.007	0.92–4.38	0.08
Southeast Asian**	1.956	1.17–3.26	0.01
White	1	Reference	

** Significant differences

likely to use food resources than white students (OR: 3.24, CI: 1.34-7.82, p=0.001; Table 4). East Asian students, Latino(a) students, and Southeast Asian students (students who identified as Filipino or Vietnamese) were each also more likely to use food resources compared to white students (East Asian: OR: 2.07, CI: 1.39-3.08, p<0.001; Latino(a): OR: 1.49, CI: 1.01-2.21, p=0.05; Southeast Asian: OR: 1.96, CI: 1.17-3.26, p=0.01; Table 4). All other student racial/ethnic demographics were not significantly associated with food resource use.

Discussion

In this secondary analysis of a survey sample of the student population at UC Davis (Loofbourrow et al., 2021), undergraduate student demographic and academic groups experiencing food insecurity and their participation with campus food resources were identified and analyzed. Consistent with previous research, the results demonstrate that college students are experiencing food insecurity to a higher degree than the general population (Bruening et al., 2017; Nazmi et al., 2019; UC Global Food Initiative, 2017; U.S. Government Accountability Office, 2018). The results indicate that 45% of undergraduate UC Davis students experience food insecurity, consistent with a previous finding that 44% of undergraduate students in the University of California system experience food insecurity (UC Global Food Initiative, 2017). Beyond this finding, the results expand knowledge of student demographic factors as they relate to differences in participation in campus food resources. This presents a lens for examining the relationship that students of varied backgrounds have with campus food resources and provides a basis for understanding the impact of student identity in the way they may experience food insecurity in college.

Students who experience food insecurity disproportionately participate in campus food resources, being 81% more likely to utilize such resources (Table 4). However, 35.5% of students who experience food insecurity do not participate in food resources (Table 2). While it is promising that the majority of students experiencing food insecurity are accessing campus food resources, which as supported by previous findings may provide a vital avenue of food support, a significant

number of students experiencing food insecurity do not use campus food resources (Esaryk et al., 2021; Goldrick-Rab, Cady, et al., 2018). Previous literature has described multiple barriers to food pantry use by students experiencing food insecurity, including social stigma and unclear information about eligibility for use or how such campus pantries operate that may contribute to lack of food resource participation (El Zein et al., 2018). This suggests that greater outreach may be needed to encourage them to utilize these resources and to overcome such barriers to resource use.

Transfer students at UC Davis disproportionately experience food insecurity compared to non–transfer students, which is supported by previous findings (UC Global Food Initiative, 2017). Although transfer students were 84% more likely to experience some level of food insecurity in the current study, they were 39% less likely to participate in campus food resources (Table 3, Table 4). This suggests that transfer students may be unaware of and/or uncomfortable with current campus food resources. These results are supported by a phenomenon described in the literature as 'transfer shock,' when transfer students not only experience lower GPA after transferring to 4-year institutions, but also struggle with more severe confusion navigating the new institution, both academically and socially (Daddona et al., 2021). Previous research has also indicated a decreased level of campus activity engagement in transfer students compared to non–transfer students, and lack of appropriate transfer resources when entering their receiving institutions further hinders their ability to adjust (Daddona et al., 2021; Nuñez & Yoshimi, 2017; Zilvinskis & Dumford, 2018). Taken together, this suggests that the food insecurity challenges that transfer students experience may be augmented by difficult adjustment to a new university setting.

As transfer students typically enter the university as juniors, they may be more vulnerable to food insecurity associated with higher academic class levels. The results from this study indicate that juniors and seniors at UC Davis experience disproportionately more food insecurity than underclassmen, a finding consistent with previous research in a similar population (UC Global Food Initiative, 2017). Freshman, sophomores, and juniors

are less likely to participate in campus food resources than seniors, suggesting a greater degree of reliance on such resources by students of higher class level or increased familiarity with resources as they acclimate to the university setting. This greater need could be due to the dwindling of aid as students reach the lifetime eligibility limit for federal financial aid, such as the Pell Grant and loans, especially near degree completion (U.S. Department of Education Office of Federal Student Aid, n.d.-a). Financial aid received also may not encompass all needs that a student may encounter during their academic journey (Kelchen et al., 2017). In addition, as students progress through college they also may accrue more debt, increasing the risk of food insecurity (Knol et al., 2018).

Findings from this study demonstrate that low-income students at UC Davis are disproportionately more food insecure, yet this increased likelihood of food insecurity is not significantly associated with campus food resource participation. This is consistent with previous research that has found that students receiving need-based financial aid are more food insecure (Martinez et al., 2018). However, previous research has suggested that low-income students may be relying on other off-campus support resources (Knol et al., 2018). The lack of use of campus food resources, despite clear need, presents a challenge in ensuring that interventions to address food insecurity reach such students (El Zein et al., 2018). Despite need-based financial aid, low-income students may not receive enough to cover the expenses of modern university costs, including both basic needs and tuition (Martinez et al., 2021). Due to protections with respect to student financial information particularly regarding low-income status, it is not possible to accurately associate reported household information with actual student financial status or that of their parent/guardian. However, in considering student food accessibility and low-income status, it is nonetheless important not only to focus on the availability of campus food resources, but other sources of institutional support as well, which may be aiding student food access.

The results of this study indicate that UC Davis first-generation students are disproportionately more food insecure and utilize campus food resources more than their peers, also consistent with previous research (Camelo & Elliott, 2019; UC Global Food Initiative, 2017). Previous research has found that first-generation students face greater social and cultural challenges adjusting to and navigating the college environment (Gibbons et al., 2019). Many first-generation students enter the institution with limited cultural capital—general knowledge of how institutional and academic systems work—producing a steeper learning curve in adjusting to the university (Stephens et al., 2015). Challenges in adjusting include lack of information about the financial aid process, difficulty navigating institutional and academic systems, and limited familial knowledge of the higher education system and/or monetary support (Feeney & Heroff, 2013; Gibbons et al., 2019). For example, during this transitional period first-generation students are vulnerable to missing crucial financial aid deadlines, thus losing assistance (Feeney & Heroff, 2013). Adjusting to and navigating the college environment may lead first-generation students to seek out campus food resources and other basic needs support in their transition to college. However, more research is needed to investigate their coping strategies in order to better discern differences between groups such as first-generation students and more traditional students.

Student race and ethnicity present a tapestry of varied experiences around food security status and campus food resource participation. Consistent with previous literature, white students at UC Davis have higher levels of food security and less frequent use of campus food resources than their peers of other racial and ethnic backgrounds (DeBate et al., 2021). In contrast, Latino(a) students and students classified as Other Asian are twice as likely to experience food insecurity than white students, as observed in the results of this study and supported by previous research (DeBate et al., 2021). Latino(a) households in the U.S. tend to experience food insecurity to a greater degree than other populations, in general (Rodriguez et al., 2021). Specific barriers to food security for Latino(a) students may be due to underlying structural racism that permeates academic environments, which contributes to food insecurity through impediments to opportunity (Bowen et al.,

2021; Merolla & Jackson, 2019). While there is limited research on food insecurity specifically among Latino(a) students, challenges of racial injustice can make it both difficult and stressful to access food in an increasingly costly college environment, which may lead to the observed increase in food insecurity and use of campus food resources.

In addition, the challenges in food access faced by undocumented students may also overlap with Latino(a) students, since most undocumented individuals in the U.S. are from Latin countries (Baker, 2021; Migration Policy Institute, 2022). As immigration status is a protected class, it was not possible to ask students their immigration status in the study survey in order to better understand how Latino(a) and undocumented student experiences may overlap. Undocumented individuals are largely ineligible for federal food benefits (U.S. Department of Agriculture Food and Nutrition Service, 2022.). Similar to international students, undocumented students (including those who are DACA- or AB540-eligible), are excluded from receiving disproportionately lower use while students who are undocumented are not exclusively Latino(a), governmental and institutional structures barring them from access to financial aid and food resources may affect Latino(a) students to a greater degree (Baker, 2021; Migration Policy Institute, 2022). Such policies promote an atmosphere of nativism and xenophobia that can negatively affect the food security of Latino(a) students regardless of their citizenship status (Ramirez, 2021). Awareness of the unique challenges that Latino(a) students may be encountering in food access can ensure students are met with equitable institutional support.

East Asian students at UC Davis make up a greater proportion of food secure students yet are twice as likely to participate in campus food resources as white students. This may highlight a potential success in bettering student food security, as East Asian students utilize resources more frequently yet do not experience food insecurity to a significant degree. Other ethnic groups have distinct differences in how they utilize campus food resources. Middle Eastern/South Asian students at UC Davis make disproportionately lower use of campus food resources, and Southeast Asian students make disproportionately higher use. While there is limited research on use of food access resources among these college populations, potential differences in help-seeking behaviors in the college setting may be relevant to observed differences in resource use (Chang et al., 2020). Such differences between ethnic groups have been seen in previous literature and point to cultural differences; however, they can also be due to negative stereotypes and stigma associated with food resources (Kim & Lee, 2014; Masuda et al., 2009). An example is the "model minority myth" that highlights how racial and ethnic stereotypes of Asian American students can lead to avoiding asking for help (Kim & Lee, 2014). While previous studies have focused more on academic, health, and emotional help-seeking behaviors in college students, it is possible that such associations with reaching out for support may be affecting decisions to use campus food resources, as seen in this study.

Student demographic and academic identities and campus food resource participation provide a lens with which the effect of current campus food resources can be evaluated. Students experiencing food insecurity, first-generation students, seniors, and Latino(a) students at UC Davis participate in campus food resources to a greater degree, which may indicate that food access support is reaching those students most affected by food insecurity (Esaryk et al., 2021). However, this participation poses a critical question for campus food resource programs: do current resources provide enough support for students who need them most? Although students experiencing food insecurity may already be utilizing campus food resources to a greater extent than their food secure counterparts, students may still experience food insecurity despite using these resources (Esaryk et al., 2021). It should be noted that most campus food access resources are designed as interventions to support students already experiencing food insecurity and provide a buffer from its negative consequences (Becerra & Becerra, 2020; Martinez et al., 2019, 2020; Payne-Sturges et al., 2018; Weaver et al., 2020). The continued existence of food insecurity among students who use these programs is not necessarily a program failure to alleviate food insecurity but may be a testament to the need for these

programs that provide important short-term support to students. The persistence of food insecurity among first-generation, seniors, and Latino(a) students may highlight the need for institutional support for students who may lack cultural capital and further speaks to pervasive inequities experienced by marginalized populations (Bowen et al., 2021; Gibbons et al., 2019; Stephens et al., 2015).

Limitations

This study is cross-sectional, and the dependent variable of food access resource use was self-reported, thus bias is possibility. While the initial sample was representative of the student population, the responses may not reflect the representative experience of all students. The institutional setting may not be generalizable to students at other institutions. Although the response rate was 15%, the sample size for some ethnic/racial demographic groups is a limitation as their small numbers may represent their overall groups. While Black/African American and American Indian/Alaska Native students had significant results, their small sample size limits generalizability to the Black/African American and America Indian/Alaska Native student experience. Thus, these results were not included in the discussion. The analysis did not consider intersectionality of identities (i.e., students who are first-generation and transfer students). Data for use of other resources to support food access off-campus was not collected, so the results may not provide a complete overview of the resources that students may use for food access.

Recommendations

This study makes a case for considering student unique identities for understanding how a student may access food on campus, both in research and in practice. Demographic and academic identity inform how students become aware of, utilizes, and are excluded from campus food resources as well as how they generally cope with food insecurity. While campus food resources provide one source of relief for students facing food insecurity, knowing that students may be coping differently based on their social identities has implications for how most equitably to reach students experiencing food

insecurity. Therefore, best practices for institutional outreach for food insecurity resources should include pursuing the creation of a network to support students that can meet them where they may be in the process of food access, rather than a one size fits all approach.

Some implications for future campus food access that can be drawn from this study are that some groups vulnerable to experiencing food insecurity, such as transfer students, are not accessing campus food resources that could alleviate immediate food needs. For these populations, stronger and consistent outreach strategies could be implemented that directly connect and engage with them. Such outreach has the potential to create more avenues for developing critical points of awareness. These avenues can function as gateways to food access support and empower students to use such resources. In addition, because campus food resources alone are not sufficient to eliminate food insecurity, more funding support, both at the institutional and governmental level, may be needed to build upon existing campus food resource programs. With more adequate funding, such programs can expand their current operations to better address student needs.

While there is some literature about the effectiveness of campus food resource usage, more research is needed to support and expand on current findings (Davis et al., 2020; El Zein et al., 2018; Esaryk et al., 2021; Gammon et al., 2021; Goldrick-Rab, Cady, et al., 2018). Further quantitative research on campus food resource usage with particular emphasis on demographics not measured in this study—such as non–traditional students, undocumented students, and student gender and sexuality—as well as impacts of the intersection of marginalized identities, is essential. More objective measures of usage frequency are needed to accurately assess program impact. Longitudinal research is also necessary to better illuminate the precipitating factors that lead to food resource use. Qualitative studies with students that utilize such campus food resources can also facilitate understanding possible patterns in food access, painting a picture of the campus food landscape from a student's view. Quantitative and qualitative studies combined can help in mapping the food pathways of college

students, knowledge with which institutions can implement better strategies, practices, and policies that are reflective of students, their needs, and their choices in food access.

Conclusion

As students navigate challenges in accessing food in the university setting, challenges influenced in part by their specific academic and demographic backgrounds, they may require greater assistance or support from campus food resources to ensure consistent food access. This research expands upon previous college food insecurity and campus food access literature to showcase the ways through which social identity underlies how students access food in the college environment (Bruening et al., 2017; Esaryk et al., 2021; Martinez et al., 2018; Nazmi et al., 2019; Reeder et al., 2020; UC Global Food Initiative, 2017). A spotlight on these factors provides implications for promoting equitable campus food access that reaches out to and empowers students to utilize resources. While the issue of student basic needs has become a priority, especially

in California due to current legislative efforts, these results indicate more can be done (Laska et al., 2021; Martinez et al., 2021; UC Global Food Initiative, 2017). The addition of campus food pantries has been shown to be successful in providing crucial immediate access to food as well as bringing student experience of food insecurity to the forefront (Esaryk et al., 2021; Gammon et al., 2021; Goldrick-Rab, Cady, et al., 2018), but further research is needed to explore how students use food resources and to understand their experiences in traversing the campus food access landscape. It should be paramount for university leadership and administration that students are not struggling to answer the fundamental question "Where and how will I find food to eat today?" and to further ensure equitable food access for all students.

Acknowledgments

References

Aggie Compass Basic Needs Center. (2022). *Nutritious food resources.* https://aggiecompass.ucdavis.edu/food-security

Associated Students, University of California, Davis [ASUCD] Pantry. (2022). *From our pantry to yours.* https://thepantry.ucdavis.edu/

Baker, B. (2021). *Estimates of the unauthorized immigrant population residing in the United States: January 2015–January 2018.* Department of Homeland Security, Office of Immigration Statistics. https://www.dhs.gov/sites/default/files/publications/immigration-statistics/Pop_Estimate/UnauthImmigrant/unauthorized_immigrant_population_estimates_2015_-_2018.pdf

Beam, M. (2020). Nontraditional students' experiences with food insecurity: A qualitative study of undergraduate students. *The Journal of Continuing Higher Education*, *68*(3), 141–163. https://doi.org/10.1080/07377363.2020.1792254

Becerra, M. B., & Becerra, B. J. (2020). Psychological distress among college students: Role of food insecurity and other social determinants of mental health. *International Journal of Environmental Research and Public Health*, *17*(11), Article 4118. https://doi.org/10.3390/ijerph17114118

Bowen, S., Elliott, S., & Hardison-Moody, A. (2021). The structural roots of food insecurity: How racism is a fundamental cause of food insecurity. *Sociology Compass*, *15*(7), e12846. https://doi.org/10.1111/soc4.12846

Britt, S. L., Ammerman, D. A., Barrett, S. F., & Jones, S. (2017). Student loans, financial stress, and college student retention. *Journal of Student Financial Aid*, *47*(1), Article 3. https://ir.library.louisville.edu/cgi/viewcontent.cgi?article=1605&context=jsfa

Broton, K. M., & Goldrick-Rab, S. (2018). Going without: An exploration of food and housing insecurity among undergraduates. *Educational Researcher*, *47*(2), 121–133. https://doi.org/10.3102/0013189X17741303

Bruening, M., Argo, K., Payne-Sturges, D., & Laska, M. N. (2017). The struggle is real: A systematic review of food insecurity on postsecondary education campuses. *Journal of the Academy of Nutrition and Dietetics*, *117*(11), P1767–P1791. https://doi.org/10.1016/j.jand.2017.05.022

Camelo, K., & Elliott, M. (2019). Food insecurity and academic achievement among college students at a public university in the United States. *Journal of College Student Development*, *60*(3), 307–318. https://doi.org/10.1353/csd.2019.0028

Chang, J., Wang, S.–w., Mancini, C., McGrath-Mahrer, B., & Orama de Jesus, S. (2020). The complexity of cultural mismatch in higher education: Norms affecting first-generation college students' coping and help-seeking behaviors. *Cultural Diversity and Ethnic Minority Psychology*, *26*(3), 280–294. http://dx.doi.org/10.1037/cdp0000311

Coffino, J. A., Spoor, S. P., Drach, R. D., & Hormes, J. M. (2021). Food insecurity among graduate students: Prevalence and association with depression, anxiety and stress. *Public Health Nutrition*, *24*(7), 1889–1894. https://doi.org/10.1017/S1368980020002001

College & University Food Bank Alliance. (n.d.). *About us.* Retrieved November 2022 from https://cufba.org/about-us/

Daddona, M. F., Mondie-Milner, C., & Goodson, J. (2021). Transfer student resources: Keeping students once they enroll. *Journal of College Student Retention: Research, Theory & Practice*, *23*(3), 487–506. https://doi.org/10.1177/1521025119848754

Davis, H., Sisson, S. B., & Clifton, S. (2020). A call for evidence to support food security interventions on college campuses. *Journal of American College Health*, *69*(6), 693–695. https://doi.org/10.1080/07448481.2019.1705829

DeBate, R., Himmelgreen, D., Gupton, J., & Heuer, J. N. (2021). Food insecurity, well-being, and academic success among college students: Implications for post COVID-19 pandemic programming. *Ecology of Food and Nutrition*, *60*(5), 564–579. https://doi.org/10.1080/03670244.2021.1954511

Dillman, D. A., Smyth, J. D., & Christian, L. M. (2008). *Internet, mail, and mixed-mode surveys: The Tailored Design Method* (3rd ed.). Wiley.

El Zein, A., Mathews, A. E., House, L., & Shelnutt, K. P. (2018). Why are hungry college students not seeking help? Predictors of and barriers to using an on-campus food pantry. *Nutrients*, *10*(9), 1163. https://doi.org/10.3390/nu10091163

Esaryk, E. E., Jiménez Arriaga, E. E., Kalaydjian, S., & Martinez, S. M. (2021). Campus food pantry use addresses a gap among California public university students. *Journal of Nutrition Education and Behavior*, *53*(11), P921–P930. https://doi.org/10.1016/j.jneb.2021.06.005

Feeney, M., & Heroff, J. (2013). Barriers to need-based financial aid: Predictors of timely FAFSA completion among low-income students. *Journal of Student Financial Aid*, *43*(2), Article 2. https://files.eric.ed.gov/fulltext/EJ1018067.pdf

Gammon, C., Camp, C. v., Harkema, J., Summers, J., Leighton, P., & Moraniec, H. (2021). Establishing a university food pantry: Growth, changes in shopper characteristics and recommendations. *Journal of American College Health*. Advance online publication. https://doi.org/10.1080/07448481.2021.1888736

Gibbons, M. M., Rhinehart, A., & Hardin, E. (2019). How first-generation college students adjust to college. *Journal of College Student Retention: Research, Theory & Practice*, *20*(4), 488–510. https://doi.org/10.1177/1521025116682035

Goldrick-Rab, S., Cady, C., & Coca, V. (2018). *Campus food pantries: Insights from a national survey.* The Hope Center for College, Community, and Justice.

Goldrick-Rab, S., Richardson, J., Schneider, J., Hernandez, A., & Cady, C. (2018). *Still hungry and homeless in college.* Wisconsin HOPE Lab. https://www.theotx.org/wp-content/uploads/2018/05/Wisconsin-HOPE-Lab-Still-Hungry-and-Homeless.pdf

Kelchen, R., Goldrick-Rab, S., & Hosch, B. (2017). The costs of college attendance: Examining variation and consistency in institutional living cost allowances. *The Journal of Higher Education*, *88*(6), 947–971. https://doi.org/10.1080/00221546.2016.1272092

Kim, P. Y., & Lee, D. (2014). Internalized model minority myth, Asian values, and help-seeking attitudes among Asian American students. *Cultural Diversity and Ethnic Minority Psychology*, *20*(1), 98–106. http://dx.doi.org/10.1037/a0033351

Klobodu, S. S., Paiva, M., Rodriguez, J., Calderon, S., & Chrisman, M. (2021). Perceived drivers of food insecurity and coping strategies of DACA-eligible college students—An exploratory study. *Journal of Hunger & Environmental Nutrition*, *16*(5), 664–683. https://doi.org/10.1080/19320248.2021.1894299

Knol, L. L., Robb, C. A., McKinley, E. M., & Wood, M. (2018). Food insecurity is related to financial aid debt among college students. *Journal of Family & Consumer Sciences*, *110*(4), 35–41. https://doi.org/10.14307/JFCS110.4.35

Laska, M. N., Fleischhacker, S., Petsoulis, C., Bruening, M., & Stebleton, M. J. (2021). Food insecurity among college students: An analysis of US state legislation through 2020. *Journal of Nutrition Education and Behavior*, *53*(3), P261–P266. https://doi.org/10.1016/j.jneb.2020.11.010

Leung, C. W., Farooqui, S., Wolfson, J. A., & Cohen, A. J. (2021). Understanding the cumulative burden of basic needs insecurities: Associations with health and academic achievement among college students. *American Journal of Health Promotion*, *35*(2), 275–278. https://doi.org/10.1177/0890117120946210

Loofbourrow, B., Jones, A., Morgan, M., & Scherr, R. (2020). Development of a comprehensive questionnaire evaluating knowledge, attitudes, and practices regarding university student food access resource use. *Current Developments in Nutrition*, *4*(Suppl. 2), 229. https://doi.org/10.1093/cdn/nzaa043_080

Loofbourrow, B., Jones, A., & Scherr, R. (2021, October 24–27). *Evaluating knowledge, attitudes, and practices (KAPs) regarding university student food access resource use*. [Conference presentation]. American Public Health Association 2021 Annual Meeting and Expo, Denver CO, U.S. https://apha.confex.com/apha/2021/meetingapp.cgi/Paper/510470

Martinez, S. M., Esaryk, E. E., Moffat, L., & Ritchie, L. (2021). Redefining basic needs for higher education: It's more than minimal food and housing according to California university students. *American Journal of Health Promotion*, *35*(6), 818–834. https://doi.org/10.1177/0890117121992295

Martinez, S. M., Frongillo, E. A., Leung, C., & Ritchie, L. D. (2020). No food for thought: Food insecurity is related to poor mental health and lower academic performance among students in California's public university system. *Journal of Health Psychology*, *25*(12), 1930–1939. https://doi.org/10.1177/1359105318783028

Martinez, S. M., Grandner, M. A., Nazmi, A., Canedo, E. R., & Ritchie, L. D. (2019). Pathways from food insecurity to health outcomes among California university students. *Nutrients*, *11*(6), Article 1419. https://doi.org/10.3390/nu11061419

Martinez, S. M., Webb, K., Frongillo, E. A., & Ritchie, L. D. (2018). Food insecurity in California's public university system: What are the risk factors? *Journal of Hunger & Environmental Nutrition*, *13*(1), 1–18. https://doi.org/10.1080/19320248.2017.1374901

Masuda, A., L. Anderson, P., Twohig, M. P., Feinstein, A. B., Chou, Y.-Y., Wendell, J. W., & Stormo, A. R. (2009). Help-seeking experiences and attitudes among African American, Asian American, and European American college students. *International Journal for the Advancement of Counselling*, *31*(3), 168–180. https://doi.org/10.1007/s10447-009-9076-2

Merolla, D. M., & Jackson, O. (2019). Structural racism as the fundamental cause of the academic achievement gap. *Sociology Compass*, *13*(6), e12696. https://doi.org/10.1111/soc4.12696

Migration Policy Institute. (2022). *Profile of the unauthorized population: United States*. https://www.migrationpolicy.org/data/unauthorized-immigrant-population/state/US

Nazmi, A., Martinez, S., Byrd, A., Robinson, D., Bianco, S., Maguire, J., Crutchfield, R. M., Condron, K., & Ritchie, L. (2019). A systematic review of food insecurity among US students in higher education. *Journal of Hunger & Environmental Nutrition*, *14*(5), 725–740. https://doi.org/10.1080/19320248.2018.1484316

Nuñez, A.-M., & Yoshimi, J. (2017). A phenomenology of transfer: Students' experiences at a receiving institution. *Innovative Higher Education*, *42*(2), 173–187. https://doi.org/10.1007/s10755-016-9374-7

Oswalt, S. B., Lederer, A. M., Chestnut-Steich, K., Day, C., Halbritter, A., & Ortiz, D. (2020). Trends in college students' mental health diagnoses and utilization of services, 2009–2015. *Journal of American College Health*, *68*(1), 41–51. https://doi.org/10.1080/07448481.2018.1515748

Payne-Sturges, D. C., Tjaden, A., Caldeira, K. M., Vincent, K. B., & Arria, A. M. (2018). Student hunger on campus: Food insecurity among college students and implications for academic institutions. *American Journal of Health Promotion*, *32*(2), 349–354. https://doi.org/10.1177/0890117117719620

Ramirez, B. R. (2021). Racist nativism in the college access experiences of undocumented Latinx students. *Journal of College Access*, *6*(2), Article 6. https://files.eric.ed.gov/fulltext/EJ1315802.pdf

Reeder, N., Tapanee, P., Persell, A., & Tolar-Peterson, T. (2020). Food insecurity, depression, and race: Correlations observed among college students at a university in the Southeastern United States. *International Journal of Environmental Research and Public Health*, *17*(21), Article 8268. https://doi.org/10.3390/ijerph17218268

Robb, C. A. (2017). College student financial stress: Are the kids alright? *Journal of Family and Economic Issues*, *38*, 514–527. https://doi.org/10.1007/s10834-017-9527-6

Rodriguez, C., Crowder, S. L., Rodriguez, M., Redwine, L., & Stern, M. (2021). Food insecurity and the Hispanic population during the COVID-19 pandemic. *Ecology of Food and Nutrition*, *60*(5), 548–563. https://doi.org/10.1080/03670244.2021.1974014

Soldavini, J., & Berner, M. (2020). The importance of precision: Differences in characteristics associated with levels of food security among college students. *Public Health Nutrition*, *23*(9), 1473–1483. https://doi.org/10.1017/S1368980019004026

Soldavini, J., Berner, M., & Da Silva, J. (2019). Rates of and characteristics associated with food insecurity differ among undergraduate and graduate students at a large public university in the Southeast United States. *Preventive Medicine Reports*, *14*, Article 100836. https://doi.org/10.1016/j.pmedr.2019.100836

Stephens, N. M., Brannon, T. N., Markus, H. R., & Nelson, J. E. (2015). Feeling at home in college: Fortifying school-relevant selves to reduce social class disparities in higher education. *Social Issues and Policy Review*, *9*(1), 1–24. https://doi.org/10.1111/sipr.12008

U.S. Department of Agriculture Economic Research Service [USDA ERS]. (2022). *Definitions of food security*. https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-u-s/definitions-of-food-security/

USDA ERS. (2022). *Food security and nutrition assistance*. https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/food-security-and-nutrition-assistance/

USDA ERS. (2012). *U.S. Adult Food Security Survey Module: Three-stage design, with screeners*. https://www.ers.usda.gov/media/8279/ad2012.pdf

USDA Food and Nutrition Service [USDA FNS]. (2021). *Supplemental Nutrition Assistance Program (SNAP) eligibility* [For Oct. 1. 2022–Sept. 30, 2023]. https://www.fns.usda.gov/snap/recipient/eligibility

U.S. Department of Education Office of Federal Student Aid. (n.d.-a). *How is my Federal Pell Grant Lifetime eligibility used calculated?* https://studentaid.gov/understand-aid/types/grants/pell/calculate-eligibility

U.S. Department of Education Office of Federal Student Aid. (n.d.-b). *Many non-U.S. citizens qualify for federal student aid*. https://studentaid.gov/understand-aid/eligibility/requirements/non-us-citizens

U.S. Government Accountability Office [GAO]. (2018). *Food insecurity: Better information could help eligible college students access federal food assistance benefits* (Report GAO-19-95). https://www.gao.gov/assets/gao-19-95.pdf

University of California [UC] Admissions. (n.d.). *Non-traditional students*. https://admission.universityofcalifornia.edu/campuses-majors/campus-programs-and-support-services/non-traditional-students.html

UC Basic Needs Initiative. (n.d.) *History: Addressing student hunger was just the first step*. https://basicneeds.ucop.edu/about/history.html

UC Global Food Initiative. (2017). *Global Food Initiative: Food and housing security at the University of California*. https://www.ucop.edu/global-food-initiative/_files/food-housing-security.pdf

Weaver, R. R., Hendricks, S. P., Vaughn, N. A., McPherson-Myers, P. E., Willis, S. L., & Terry, S. N. (2021). Obstacles to food security, food pantry use, and educational success among university students: A mixed methods approach. *Journal of American College Health*. Advance online publication. https://doi.org/10.1080/07448481.2021.1873789

Weaver, R. R., Vaughn, N. A., Hendricks, S. P., McPherson-Myers, P. E., Jia, Q., Willis, S. L., & Rescigno, K. P. (2020). University student food insecurity and academic performance. *Journal of American College Health*, *68*(7), 727–733. https://doi.org/10.1080/07448481.2019.1600522

Zilvinskis, J., & Dumford, A. D. (2018). The relationship between transfer student status, student engagement, and high-impact practice participation. *Community College Review*, *46*(4), 368–387. https://doi.org/10.1177/0091552118781495

Special Section:
Justice and Equity Approaches to College and University Student Food (In)Security

SPECIAL SECTION SPONSORED BY

College student food security during the COVID-19 pandemic

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Abstract
Food insecurity among college and university students has increased in the past decade. The COVID-19 pandemic has presented unique public health challenges, including increased food insecurity. In a cross-sectional survey of students at a private university in the midwestern U.S. (*N*=253) we examined how student food security status changed during the pandemic and what relationships exist between changes in food security and various aspects of student identities. Twenty-nine percent of responding students indicated that they became less food secure during the pandemic, and the overall reported food insecurity rate increased by 130.77%. Change in respondent food security status during the pandemic was associated with household income (*p*=0.000), loss or family loss of employment because of the pandemic (*p*=0.000), receiving financial aid (*p*=0.006), individual or family infection with COVID-19 (*p*=0.020), perceived health during the pandemic (*p*=0.000), eating 4.5

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The authors have no conflicts of interest to disclose.

cups of fruits and/or vegetables each day (p=0.040), race and ethnicity (p=0.042), first-generation in higher education (p=0.017), sexual orientation (p=0.027), and spring 2020 GPA (p=0.003). The results contribute to a growing body of evidence that higher education institutions, as well as state and federal governments, should increase their efforts to support students to achieve food security. In doing so, it is critical to consider the disparities in food security associated with diverse and intersecting social identities, including socio-economic class, race and ethnicity, being first in one's family to attend college, and sexual orientation. Our results further suggest the need for interventions that not only address immediate symptoms of food insecurity but also structural discrimination that makes it more difficult for members of marginalized groups to become food secure.

Keywords
Food Insecurity, Higher Education, COVID-19, Pandemic, Sexual Orientation, Retrospective Pretest-Posttest

Introduction
Food insecurity refers to the lack of consistent access, in socially acceptable ways, to an adequate and safe food supply for an active and healthy life (McArthur et al., 2018). Marginalized groups have been more likely to experience food insecurity, including single-female households with children, Black and Hispanic American households, and households with an income under 185% of the federal poverty guidelines (Maroto et al., 2015). Although reducing food insecurity has been a major priority for multiple national agencies, such as the U.S. Department of Health and Human Services and the U.S. Department of Agriculture, food insecurity in the U.S. has risen nationwide and on college campuses (Maroto et al., 2015). In the past decade, the number of college students experiencing food insecurity has increased and students from marginalized households have been more likely to experience food insecurity (Mialki et al., 2021).

The reported food insecurity rate among U.S. college students has exceeded the national average of 14% for children and adults (Coleman-Jensen et al., 2014). One systematic review found that the student food insecurity rate prior to the pandemic averaged 32.9 % (Bruening et al., 2017), while another systematic review found an average of 43.5% (Nazmi et al., 2019). Both studies agreed that food insecurity among college students could be as high as 50%. Research conducted at two large state universities during the pandemic showed contradicting results. One study conducted in April 2020, found that 17% of students reported experiencing food insecurity at the start of the pandemic, exceeding the general population average but not the rate previously recorded at that institution (Davitt et al., 2021). In a study conducted from May to June 2020, 34.5% of the students surveyed indicated that they were food insecure (Owens et al., 2020), also exceeding the national average. (Data on food insecurity before the pandemic were not available for this university.) These studies varied in the points during the pandemic when they were conducted, the amount of time the surveys were open, and the survey items used, among other factors. Thus food insecurity rates have varied across colleges and universities; further psychometric testing of the surveys used in food security studies is needed to explain the variation (Nikolaus et al., 2020). Nonetheless, studies have been consistent in that nearly all have documented food insecurity rates among students that exceed the national average.

High food insecurity rates among college students raise concerns not only for student nutrition and physical health. Food insecurity has been associated with lower GPA (McArthur et al., 2018) and higher rates of mental health issues, unhealthy eating, and alcohol use (Bruening et al., 2016). Students report that effects of food insecurity include stress, fear of disappointing family, resentment of food-secure students, difficulty in developing meaningful social relationships, sadness, feeling hopeless or undeserving of help, academic consequences, and physical impacts like hunger and illness. A student stated that food insecurity manifests in a way that causes a feeling "that one is not worth food" (Meza et al., 2019, p. 1717).

The COVID-19 pandemic has exacerbated the effects of food insecurity, especially for marginalized groups (Morales et al., 2021) who already

experience higher food insecurity rates due to structural racism and/or other determinants such as poverty, unemployment, incarceration, and disability (Coleman-Jensen & Nord, 2013; Odoms-Young & Bruce, 2018). Recent research in two large land-grant universities has demonstrated that food security worsened during the pandemic for 17.7% (Soldavini et al., 2021) and 59.6% (Mialki et al., 2021) of students in the studies. To further understand the impact of the pandemic on student-reported food security, we investigated how changes in food security status at a private university in the midwestern U.S. during the pandemic, as compared to prior to its onset, may be associated with four categories of factors: finances, health, food access, and diverse facets of student social identities. We focused on these four categories based on the results of prior studies.

Financial factors, including household income, financial aid, and employment, can affect a college student's food security status. A study at a large, public university found that food security depended on the income of student families and that receiving financial support from parents reduced the odds of food insecurity (Payne-Sturges et al., 2018). A study at two community colleges, urban and suburban, found no association between food security and income, perhaps due to students not knowing their family household income (Maroto et al., 2015). Studies also have shown that food-insecure students receive more financial aid through their institutions (Davitt et al., 2021). The substantial rise in food insecurity has been attributed, in part, to the growing cost of higher education and the limitations of financial aid to meet basic needs (Payne-Sturges et al., 2018; Watson et al., 2017). Others have documented associations of change in food security with loss of student or family employment during the pandemic (Mialki et al., 2021; Soldavini et al., 2021).

Health factors also relate to food security status. The Center for Disease Control (CDC) recommends eating 4.5 cups of fruits and/or vegetables per day (Lee-Kwan et al., 2017); meeting this dietary requirement can serve as a modest indicator of the nutritional quality of the food consumed by students. In one study, researchers reported that few college students met CDC recommendations

for fruit, vegetable, and fiber consumption, with no difference found in nutritional intake between food-secure and food-insecure students (Davitt et al., 2021). However, other researchers have found that food-insecure students are less likely to consume the recommended quantity of fruits and vegetables (Mei et al., 2009).

Some students and/or their families may have experienced increased risk of COVID-19 because they had to continue working in-person at jobs providing essential services. Carlsten et al. (2021) reported that essential workers (e.g., health workers, protective services, office and administrative support, social services, and maintenance workers) faced the highest susceptibility to COVID-19. During the time of our study, vaccines were not available to most of the U.S. population, and a lack of safety precautions in many workplaces put economically vulnerable families at higher risk of disease (Michaels & Wagner, 2020). Students or their families who were essential workers when the vaccine was not available could have become ill more easily and thus experienced reduced food security due to loss of income and the need to isolate (Wolfson & Leung, 2020).

Prior to the pandemic, factors including living situation and transportation options were found to influence student ability to access food. Studies found that students who lived alone, with spouses/partners, or with roommates were more likely to be food insecure than students living with their parents or relatives (Maroto et al., 2015; Payne-Sturges et al., 2018). Furthermore, lack of reliable transportation was reported by students as a barrier to food access (Henry, 2017). During the pandemic, mandated shelter-in-place policies, lack of transportation, and/or fear of harassment (e.g., anti-Asian xenophobia) made accessing food more difficult for groups predisposed to be food insecure (Morales et al., 2021).

Several facets of social identity have been associated with food insecurity. In studies completed prior to the pandemic, researchers found that African American, Hispanic, and Asian students were more likely to be food insecure than White students (Cady, 2014; Maroto et al., 2015; Payne-Sturges et al., 2018). Studies conducted since the onset of COVID-19 at two large, public universi-

ties found that Black, Asian, Latine,[1] and multiracial students comprised the highest percentages of those experiencing decreased food security due to the pandemic (Mialki et al., 2021; Soldavini et al., 2021). Soldavini et al. (2021) also reported that 30.7% of students who experienced food security loss were first-generation students.

Sexual minorities have experienced disparate access to resources and greater food insecurity relative to heterosexuals (Gibbs et al., 2021), but this aspect of identity has not been commonly studied in studies of food security among students. Gibbs et al. (2021) found that twice as many people experienced in sexual interactions with the same sex were moderately to severely food insecure compared to heterosexual individuals. They hypothesized that the increased vulnerability of sexual minorities to food insecurity is a manifestation of structural discrimination and sexual stigma, which limit their access to employment opportunities, social support, and housing security—as well as increase their risk of poverty. Furthermore, non-affirming social circumstances create harmful interpersonal experiences, resulting in sexual minorities often working at lower wages in more vulnerable situations than heterosexual people. With diminished financial resources, and with housing discrimination, sexual minorities are often relegated to living in areas of food apartheid (Gibbs et al., 2021). Sexual minority students are more likely to face these socio-structural inequities and thus experience greater food insecurity.

The four groups of factors involving finances, health, food access, and social identities do not occur independently. An example of the intersection of food insecurity, race, and public health is the disproportionate impact, including high rates of job loss and COVID-19 deaths, on the U.S. Black population due to persistent underlying economic and health inequities (Gould & Wilson, 2020). Food security relates to financial, health, and food access factors, which interact with social identities and highlight the need for researchers to consider intersectionality among race, ethnicity, and other social determinants of health when studying stu-

dent food insecurity. Toward that end, we conducted a cross-sectional survey at a private university in the midwestern U.S., using a retrospective pretest–posttest design (Little et al., 2020), to assess changes in student-reported food security during the pandemic compared to prior to its onset. We examined how the changes related to financial, health, food access, and social identity factors.

Research Methods

Using Qualtrics (qualtrics.com), we distributed a cross-sectional, closed-ended, web-based survey to students attending Loyola University Chicago, a private university in the midwestern U.S. In 2018, the student population was 11,919 undergraduates (70.08%) and 5,088 graduate students; 66% of enrolled students were women and 40.2% were students of color (Office of Institutional Effectiveness, 2019). We sought to reach as many students as possible by distributing the survey through multiple channels, including the Office of the Dean of Students, academic departments, and various university programs, groups, and student clubs (Appendix). To participate, students had to be an enrolled undergraduate or graduate student and at least 18. We endeavored to include students from marginalized identity groups because studies have suggested that members of these groups are least likely to answer questionnaires but most likely to be food insecure (Leung & Tester, 2019). Therefore, we sent the questionnaire to university organizations led by and composed of students from marginalized identity groups. The survey, approved by the university Institutional Review Board, was open for three months from February 12 to May 7, 2021. Two hundred and fifty-three students completed the survey at sufficient depth to provide usable data for analysis. Following other studies (Maroto et al., 2015), we used the U.S. Department of Agriculture 10-Item Food Security Module (Economic Research Service, 2012) to measure food security, and closed-ended questions to obtain socio-demographic information, as described below.

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[1] "Latine" refers to people of diverse races, ethnicities, cultures, and languages who share Latin American ancestry. It is used to be inclusive of all gender identities.

Food Security and Food Security Change Variables

To assess the change in food security among students due to the pandemic, we adopted 10 questions (Table 1) from the 10-Item Food Security Module (Economic Research Service, 2012; Mialki et al., 2021). The questions were asked twice: for the timeframe March 2020 to May 2021 (during the pandemic) and then for the timeframe October 2019 to March 2020 (before the pandemic). This retrospective pretest-posttest design was used to help participants reflect with greater awareness on the degree of change that they experienced (Little et al., 2020). *Yes*, *often*, *sometimes*, *almost every month*, and *some months not every month* were coded as 1. *Never true*, *no*, and *only 1 or 2 months* were coded as 0 following the recommendation of the Economic Research Service (2012). After coding responses, we inspected the *decline to answer/don't know* responses and verified if there was enough information to enter imputed values. A conservative 0 score was given to each missing item to minimize the chance of granting a food insecurity score when the participant is food secure. In total, we

Table 1. Students were asked to respond to items from the 10-Item Food Security Module (Economic Research Service, 2012) for March 2020 to the present and then October 2019 to March 2020

Survey Items	Response options with score in parenthesis
(I/We) worried whether (my/our) food would run out before (I/we) got money to buy more.	Often true (1) Sometimes true (1) Never true (0) Decline to answer/Don't know
The food that (I/we) bought just didn't last, and (I/we) didn't have money to get more.	Often true (1) Sometimes true (1) Never true (0) Decline to answer/Don't know
(I/We) couldn't afford to eat balanced meals.	Often true (1) Sometimes true (1) Never true (0) Decline to answer/Don't know
Did (you/you or other adults in your household) ever cut the size of your meals or skip meals because there wasn't enough money for food?	Yes (1) No (0) Decline to answer/Don't know
How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?	Almost every month (1) Some months but not every month (1) Only 1 or 2 months (0) Decline to answer/Don't know
Did you ever eat less than you felt you should because there wasn't enough money for food?	Yes (1) No (0) Decline to answer/Don't know
Were you ever hungry but didn't eat because there wasn't enough money for food?	Yes (1) No (0) Decline to answer/Don't know
Did you lose weight because there wasn't enough money for food?	Yes (1) No (0) Decline to answer/Don't know
Did (you/you or other adults in your household) ever not eat for a whole day because there wasn't enough money for food?	Yes (1) No (0) Decline to answer/Don't know
How often did you not eat for a whole day because there wasn't enough money for food—almost every month, some months but not every month, or in only 1 or 2 months?	Almost every month (1) Some months but not every month (1) Only 1 or 2 months (0) Decline to answer/Don't know

imputed a 0 score for 14 participants with three or fewer missing items during the pandemic, and eight participants with two or fewer missing items for before the pandemic.

The sum of affirmative responses to the 10 questions is the raw food security score. A raw score of zero represents *high food security among adults*, a raw score of 1–2 indicates *marginal food security*, a raw score of 3–5 indicates *low food security*, and a raw score of 6–10 specifies *very low food security* (Economic Research Service, 2012). We collapsed *low food security* and *very low food security among adults* into one category called *low food security* (Soldavini et al., 2019). Thus, each participant was designated as reporting high, marginal, or low food security both before and during the pandemic. We compared these food security categories during and before the pandemic to determine a change in food security. For each participant, food security either decreased, increased, or did not change. Participants experienced a decrease in food security if their category during the pandemic reflected lower food security than prior to it. Participants experienced an increase in food security if their category during the pandemic reflected higher food security than prior to it. If the participant's category was the same during and before the pandemic, then that individual experienced no change in food security.

Socio-demographic Variables
To assess an association between changes in food security and socio-demographic attributes, participants responded to closed-ended questions asking about their gender identity, race and ethnicity, sexual orientation, if they were a graduate or undergraduate student, years of college attendance, if they were the first generation of their family to attend a higher education institution, and their GPA during and before the pandemic. Participants also reported financial characteristics, including financial aid, household income, employment before and during the pandemic, and losing employment due to COVID-19. Reported health factors included perceived health during and before the pandemic, if they were infected with COVID-19, and if they consumed 4.5 cups of fruits and

vegetables per day. To ascertain factors related to food access, the survey asked about participant living situation during and before the pandemic, as well as their access to transportation. Finally, to understand perceptions of the university resources to help food-insecure students, participants were asked if they were familiar with and had used these resources, if the university could improve how it provides resources, and what solutions they suggest for increasing food security at the university.

Data Analysis
Two hundred fifty-three participants completed the food security survey, but data were missing for some demographic variables, as noted in Tables 2–6. Data were descriptively analyzed to assess change in food security status. We employed a two-sided Fisher Exact Test of Independence (Marshall et al., 2021) to test our hypotheses that changes in student food security status during the pandemic are associated with intersecting identities. The analysis was completed with RStudio (posit.co).

Limitations
This study has several limitations. Others have noted that cross-sectional studies like ours only capture transient relationships (Payen-Sturges et al., 2018). The data were collected during a specific period of the COVID-19 pandemic when most students were taking classes online at Loyola University Chicago, but approximately one year had passed since the pandemic started. Therefore, the study was vulnerable to recall bias. That the data are self-reported poses another limitation (Payne-Sturges et al., 2018); ultimately, the data speak to student perceptions about their own experiences. Our sample was passively recruited, and the results cannot be generalized beyond the students surveyed. We also ran a bivariate statistical analysis that did not control for confounding variables, thereby restricting the assertion of causality. For the household income variable, providing few response options was practical but limits interpretation of the results. The broad category of $45,000–$139,999[2] does not allow for fine distinctions among students whose household income fell

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[2] All currencies in this paper are in US$.

in this bracket. Despite limitations related to recall bias, generalizability, and causality, our results provide useful insights into student experience of food insecurity and how changes in food security during the pandemic related to financial, health, food access, and social identity factors.

Results

Of the survey participants, 82.61% were undergraduate students, 75.29% identified as women, 38.68% as non-heterosexual/non-straight, 32.81% as students of color, and 18.97% as first-generation college students. Students reported that before the pandemic 10.27% experienced low food security and 10.67% marginal food security. During the pandemic, 23.71% reported experiencing low food security and 11.06% marginal food security. Thirty

percent of participants experienced a decrease in food security during the pandemic and 3.16% experienced an increase in food security during that time (Table 2).

Financial Factors

Change in food security status is associated with household income ($p=0.000$), losing employment due to the pandemic ($p=0.000$), and receiving financial aid ($p=0.006$). The percentage of students reporting decrease in food security during the pandemic was highest for those who themselves or their families lost employment (62.96%) and those receiving financial aid from the university (15.08%). Students in the <$20,000 income bracket (43.75%) reported the highest decrease in food security, but the sample size was small ($n=7$) (Table 2). Change

Table 2. Results of Fisher Exact Test for Food Security Status Change and Financial Factors

Characteristic	N 253	Decrease 75 (29.64%)	Increase 8 (3.16%)	No Change 170 (67.19%)	p value
		Food Security Status Change			
Household Income (US$)[1]					0.000*
<$20,000	16	7 (43.75%)	0 (0%)	9 (56.25%)	
$20,000-$44,999	23	2 (8.69%)	0 (0%)	21 (91.30%)	
$45,000-$139,999	92	36 (39.13%)	3 (3.23%)	53 (57.60%)	
>$139,999	108	9 (8.33%)	2 (1.85%)	97 (89.81%)	
Student's Current Employment					0.206
Employed	124	43 (34.68%)	4 (3.22%)	77 (62.09%)	
Unemployed	129	32 (24.81%)	4 (3.10%)	93 (72.09%)	
Student's Employment Before Pandemic					0.114
Employed	139	48 (34.53%)	3 (2.16%)	88 (63.31%)	
Unemployed	114	27 (23.68%)	5 (4.39%)	82 (71.93%)	
Student and/or Family Put out of Work because of Pandemic					0.000*
Only Family	47	21 (44.68%)	2 (4.25%)	24 (51.06%)	
Only Myself	54	21 (38.89%)	2 (3.70%)	31 (57.41%)	
Myself and Family	27	17 (62.96%)	2 (7.41%)	8 (29.63%)	
No	125	16 (12.80%)	2 (1.60%)	107 (85.60%)	
Financial Aid					0.006*
Yes	200	67 (33.50%)	8 (4.00%)	125 (62.50%)	
No	53	8 (15.08%)	0 (0%)	45 (84.90%)	

[1] Totals not adding up to total sample size are due to missing data/declined responses.

in food security was not associated with student current employment status and employment before the pandemic.

Health Factors

Change in food security was associated with being infected with COVID-19 ($p=0.020$), perceived health during the pandemic ($p=0.000$), and eating 4.5 cups of fruits and/or vegetables per day ($p=0.040$). The percentage of students reporting a decrease in food security during the pandemic was highest for those perceiving their health to be poor during the pandemic (53.85%), those infected by COVID-19 with their families infected as well (48.15%), and those that did not eat 4.5 cups of fruits and/or vegetables per day (18.75%). Change in food security was not associated with perceived health before the pandemic (Table 3).

Food Access Factors

Change in food security was not associated with access to transportation, change in living situation, living situation before the pandemic, or with whom students currently live (Table 4).

Demographic Factors of Social Identity

Change in food security status was associated with student race and ethnicity ($p=0.042$), sexual orientation ($p=0.027$), and first-generation status ($p=0.017$). The percentage of students reporting a decrease in food security during the pandemic was highest for Latine students (48%), followed by a combined category of students who identified as mixed race or ethnicity, White but not European, or Indigenous American (46%). Thirty-three percent of Black students, 31% of Asian students, and 24% of White-identifying students responding to the survey reported decreased food security during the pandemic. A larger percentage of students that were first-generation (46%) also indicated a decrease in food security than those that were not (26%). A larger percentage of LGBTQIA+ students (38%) also indicated a decrease in food security than those who identified as heterosexual/straight (24%). Change in food security was not associated with gender identity, undergraduate or graduate status, or years of college attendance (Table 5).

Table 3. Results of Fisher Exact Test for Food Security Status Change and Health Factors

Characteristic	N 253	Decrease 75 (29.64%)	Increase 8 (3.16%)	No Change 170 (67.19%)	p value
Infected by COVID					0.020*
Only Family	63	24 (38.09%)	2 (3.17%)	37 (58.73%)	
Only Myself	13	6 (46.15%)	0 (0%)	7 (53.85%)	
Myself and Family	27	13 (48.15%)	1 (3.79%)	13 (48.15%)	
No	150	32 (21.33%)	5 (3.33%)	113 (75.33%)	
Perceived Health During Pandemic					0.000*
Excellent	28	1 (3.57%)	0 (0%)	27 (96.43%)	
Fair	85	35 (41.17%)	0 (0%)	50 (58.82%)	
Good	127	32 (25.19%)	7 (5.51%)	88 (69.29%)	
Poor	13	7 (53.85%)	1 (7.69%)	5 (38.46%)	
Perceived Health Before Pandemic					0.712
Excellent	51	15 (29.41%)	0 (0%)	36 (70.59%)	
Fair	26	9 (34.61%)	0 (0%)	17 (65.38%)	
Good	173	50 (28.90%)	8 (4.62%)	115 (66.47%)	
Poor	3	1 (33.33%)	0 (0%)	2 (66.67%)	
4.5 Cups of Fruit and/or Vegetables per Day					0.040*
Yes	64	12 (18.75%)	1 (1.56%)	51 (79.69%)	
No	189	63 (33.33%)	7 (3.70%)	119 (62.96%)	

Table 4. Results of Fisher Exact Test for Food Security Status Change and Food Access Factors

Characteristic	N 253	Food Security Status Change			p value
		Decrease 75 (29.64%)	Increase 8 (3.16%)	No Change 170 (67.19%)	
Transportation					0.235
Students with access to a car	124	32 (25.81%)	4 (3.22%)	88 (70.97%)	
Students with no access to a car but access to train	120	39 (32.50%)	3 (2.50%)	78 (65%)	
Students with no access to car or train	9	4 (44.44%)	1 (11.11%)	4 (44.44%)	
Living Situation Change					0.188
Yes	133	46 (34.59%)	4 (3.01%)	83 (62.41%)	
No	120	29 (24.17%)	4 (3.33%)	87 (72.50%)	
Living Situation Before Pandemic					0.117
Family	30	12 (40.00%)	2 (6.67%)	16 (53.33%)	
Off-Campus Housing	103	35 (33.98%)	4 (3.88%)	64 (62.13%)	
Residence Hall	97	25 (25.77%)	2 (2.06%)	70 (72.16%)	
Other	23	3 (13.04%)	0 (0%)	20 (86.85%)	
Who Currently Live With					0.607
By Myself	41	13 (31.70%)	0 (0%)	28 (68.29%)	
Other People	212	62 (29.24%)	8 (0.94%)	142 (66.98%)	

Grade Point Average

Spring 2020 grade point average (GPA) was associated with change in food security ($p=0.003$). Ninety percent of students that reported their GPA for spring 2020 had a GPA of 3.6-4.0. Only 9% reported a GPA below 3.0, but this category had the highest percentage of students experiencing a decrease in food security. Of students who indicated that their food security decreased during the pandemic, the majority (53.33%) reported a <3.0 GPA (Table 6).

Student Perceptions of Campus Efforts to Increase Food Security

When asked about solutions for increasing food security at the university, 79.28% of participants ($N=251$) indicated that they would like the university to make existing resources more widely known through campus marketing campaigns, and 63.35% wanted the university to provide more resources to promote food security. Given a list of three resources offered by the university to address food insecurity, 91.63% answered that they did not know about these resources; only 8.37% answered

yes. Among the latter, 19.05% reported that they had previously used these resources and 80.95% had not. Asked if the university could improve its efforts to provide resources for food security, 84.46% ($N=200$) responded yes. Asked what additional resources would be helpful to them at the time of the survey, 73% ($N=251$) responded that they would like information about university resources for food insecurity; 43% would like information about the Supplemental Nutrition Assistance Program and/or the Special Supplemental Nutrition Program for Women, Infants, and Children; 38% would like information about local food pantries; and 13.5% would like other information not listed.

Discussion

College students in this study reported an increased food insecurity incidence of 130.77% during the pandemic, consistent with other studies documenting higher food insecurity among college students during the pandemic (McCarthy et al., 2022; Mialki et al., 2021; Soldavini et al., 2021; Wolfson & Leung, 2020). We found that 23.71% of respond-

Table 5. Results of Fisher Exact Test for Food Security Status Change and Social Identity Factors

| | | Food Security Status Change | | | |
Characteristic	N 253	Decrease 75 (29.64%)	Increase 8 (3.16%)	No Change 170 (67.19%)	p value
First Generation of Higher Education					0.017*
Yes	48	22 (45.83%)	2 (4.16%)	24 (50.00%)	
No	205	53 (25.85%)	6 (2.92%)	146 (71.22%)	
Race and Ethnicity					0.042*
Asian	26	8 (30.77%)	2 (7.69%)	16 (6.15%)	
Black	12	4 (33.33%)	0 (0%)	8 (66.67%)	
Latine	21	10 (47.61%)	2 (9.50%)	9 (42.86%)	
Other Multiracial	24	11 (45.83%)	0 (0%)	13 (54.17%)	
White	170	42 (24.40%)	4 (2.35%)	124 (72.94%)	
Years of College Attendance					0.256
1	32	4 (12.5%)	2 (6.25%)	26 (81.25%)	
2	58	15 (25.86%)	1 (1.72%)	42 (72.41%)	
3	47	16 (34.04%)	2 (4.25%)	29 (61.70%)	
4	82	28 (34.15%)	3 (3.66%)	51 (62.19%)	
> 5	34	12 (35.29%)	0 (0%)	22 (64.71%)	
Undergraduate or Graduate					0.470
Undergraduate	209	63 (30.14%)	8 (3.83%)	138 (66.03%)	
Graduate	44	12 (27.27%)	0 (0%)	32 (72.73%)	
Gender Identity[1]					0.564
Woman	189	58 (30.69%)	6 (3.17%)	125 (66.14%)	
Man	42	9 (21.43%)	1 (2.38%)	32 (76.19%)	
Students that selected nonbinary, genderqueer/gender non-conforming, identity not listed, or declined to answer	20	7 (35.00%)	1 (5.00%)	12 (60.00%)	
Sexual Orientation[1]					0.027*
Heterosexual/Straight	149	35 (23.49%)	4 (11.43%)	110 (73.82%)	
Non-Heterosexual/Non-Straight	94	36 (38.29%)	4 (4.25%)	54 (57.45%)	

[1] Totals not adding up to total sample size are due to missing data/declined responses.

Table 6. Results of Fisher Exact Test for Food Security Status Change and GPA

| | | Food Security Status Change | | | |
Characteristic	N 253	Decrease 75 (29.64%)	Increase 8 (3.16%)	No Change 170 (67.19%)	p value
GPA Spring 2020[1]					0.003*
3.6-4.0	151	32 (21.19%)	1 (0.66%)	118 (78.14%)	
3.1-3.5	45	7 (15.55%)	2 (4.44%)	36 (80.00%)	
<3.0	15	8 (53.33%)	1 (6.66%)	6 (40.00%)	

[1] Totals not adding up to total sample size are due to missing data/declined responses.

ents indicated that they were food insecure at least once during the year following the lockdown in March 2020. Another study conducted in Summer 2020 at a different private university in the same city found that 28.6% of responding students experienced food insecurity (Glantsman et al., 2021). Similar studies in large, public universities in Summer 2020 found that 17% (Davitt et al., 2021) and 34.5 % (Owen et al., 2020) of respondents were food insecure. Food insecurity worsened for 29.64% of students in our study, as compared to 17.7% (Soldavini et al., 2021) and 59.6% (Mialki et al., 2021) in studies that took place two to three months after the March 2020 lockdown at large, public universities. This emerging body of evidence documents that food insecurity among college students, already a concern prior to COVID-19, has been exacerbated by the pandemic.

Consistent with previous research, increased food insecurity in this study was associated with financial and health factors. Food access factors related to living situation and transportation, however, were not significant. Increased food insecurity also was associated with social identity factors, including race and ethnicity, being the first generation in the family to attend college, and sexual orientation. Our results agree with some recent studies examining changes in food security due to COVID-19 and contradict others; however, as others have noted, studies cannot be easily compared because they use different measures for food security (Cady, 2014) and do not consistently report details about the community, administration, and student body (Nazmi et al., 2019).

We found that change in student food security status during the COVID-19 pandemic was associated with household income. A non-linear trend across income brackets in the percentage of students that experienced greater food insecurity adds uncertainty to our results. The largest percentage of students reporting increased food insecurity (43.75%) was from households with annual income below $20,000. Only 8% of students in the $20,000–$44,999 income bracket reported decrease in food security, compared to 39% of students from households that would be considered middle class ($45,000–$139,999 annual income). Although the non-linear trend prevents robust conclusions

about the association between household income and change in food security, our results resemble national trends in that food insecurity has affected individuals across a range of income brackets during the COVID-19 pandemic (Lauren et al., 2020). Furthermore, half of our respondents indicated that they, their family, or both lost employment due to the pandemic. The highest percentage of students reporting a decrease in food security fell in this latter group. Our results align with three studies in large, public universities that found change in food security associated with loss of student employment and loss of household employment during the pandemic (Hagerdon et al. 2020; Mialki et al., 2021; Soldavini et al., 2021). As in one study in a large, public university (Soldavini et al., 2021), we found that change in food security status during the pandemic was associated with student reception of financial aid.

We also found that change in student food security status during the COVID-19 pandemic was associated with health factors, including having 4.5 cups of fruit and/or vegetables per day. The percentage of students that experienced a decrease in food security was highest for those that did not eat 4.5 cups of fruits and/or vegetables per day, consistent with Mei et al. (2009) who found this association with food security at a large, public university before the pandemic. A fall 2022 survey of more than 100,000 students at 202 colleges in 42 states found that students self-reporting COVID-19 infection were more likely to experience food insecurity, anxiety, and depression (Goldrick-Rab et al., 2022). In our study, change in food security also was associated with infection by COVID-19, perceived health, and perceived change in health. The percentage of students that experienced a decrease in food security was highest for those who got infected by COVID-19 along with their families and who perceived their general health as poor during the pandemic. Inadequate workplace safety measures may have put some of these families at risk, as Michaels and Wagner (2020) have reported.

We also found that just over half of the students experienced a change in their living situation during the pandemic, but this was not related to a change in food security. Our results differ from a

study at a large, public university that reported an association between change in living situation due to the pandemic and change in food security, with differences occurring between students living off and on campus (Davitt et al., 2021). In our study, change in food security also was not associated with student living situations before the pandemic or their access to transportation. Our results regarding transportation may differ from another study (Henry, 2017) due to a lack of statistical power in our study (only nine respondents had no access to a car or train) or because the university is located near public transit, and enrolled students can take unlimited train and bus rides using a student pass.

Our results showed that students with social identities that were already vulnerable to food insecurity before the pandemic experienced greater impact on their food security during COVID-19. The percentage of students that experienced a decrease in food security was highest among students that identified as Latine, followed by multiracial and American Indigenous, Black, and Asian students. It was lowest among those that identified as White. These results align with other recent studies documenting racial disparities in the pandemic impact on student food security at large, public universities (Mialki et al., 2021; Soldavini et al., 2021). Similarly, in a private university located in the same city as this study, students of color were at significantly greater risk of food insecurity than White students during the pandemic (Glantsman et al., 2021). Race and ethnicity are primary factors associated with food insecurity and health outcome disparities due to social and economic disadvantages, a long history of disparate treatment, and several dimensions of social stratification (e.g., education, income, comorbidities, occupation) (Kimani et al., 2021). We also found that food insecurity was higher among students that are first generation in higher education, consistent with findings by Soldavini et al. (2021).

The percentage of students that experienced a decrease in food security was higher among students that identify as LGBTQIA+ than their heterosexual peers. At a private university in the same city, sexual minorities also were at higher risk of food insecurity than straight/heterosexual students

during the pandemic (Glantsman et al., 2021). Structural discrimination and sexual stigma may create vulnerabilities to food insecurity for the LGBTQIA+ population. Research is needed to explicate further the specific mechanisms that cause the disparate experience of food insecurity between LGBTQIA+ and heterosexual individuals.

Food insecurity may affect student academic success. We found that GPA in the spring semester of 2020 was associated with being food insecure. Before the pandemic, Maroto et al. (2015) found at two community colleges that food-insecure students were more likely to report a lower GPA. However, Payne-Sturges et al. (2018) found no statistically significant difference in self-reported GPA by food security status in a large, public university. It is unclear whether GPA is a good indicator of academic success; other measures such as delayed graduation, discontinuous enrollment, and attenuation of academic goals should also be considered. Food insecurity may indirectly worsen student's academic experience by negatively impacting student's physical and mental health, social relationships, and emotional well-being (Bruening et al., 2016). Additional research could examine how food insecurity affects learning experience and academic success.

Implications and Recommendations
Food insecurity poses a serious threat to college student well-being but has been inadequately addressed by higher education institutions (Watson et al., 2017). Integrating our results with calls for action in the literature by others, we recommend that colleges and universities address food insecurity in at least three realms: shifting campus culture, providing direct food assistance, and advocating for policy change at state and federal levels.

Lack of action from universities may be due partly to the normalization of food insecurity in college students. If students are struggling to meet their basic needs, food is one of the easiest things to sacrifice to make ends meet (Watson et al., 2017). To be a "starving college student" can sometimes be seen as a rite of passage (Crutchfield et al., 2020; Meza et al., 2019). Rather than enabling normalization, colleges and universities can adopt interdisciplinary approaches that include campus

administration, academic faculty, student affairs practitioners, governing bodies, and non-profit organizations (Cady, 2014) to create a culture that encourages food literacy, including food knowledge, cooking skills, and the value of food for social cohesion (Watson et al., 2017). Shifting campus culture can help normalize the fact that all students should have access to adequate, safe, and socially acceptable food.

COVID-19 has highlighted the need for more proactive and creative strategies to reach students directly with food-related resources, regardless of where they are located physically and socially. The university where this study took place has provided food security assistance through two food pantries on its campuses. One pantry has been non-operational since the beginning of the pandemic but the other has been supplied through donations and a separate stream of resources. Although these resources are available to students, they are not necessarily salient to the student body (Office of the Dean of Students, personal communication, October 26, 2020). Our results showed that only 8.37% of respondents knew about these resources, 79.28% would like the university to make these resources more widely known, and 63.35% wanted the university to provide more resources. Brito-Silva et al. (2021) similarly found that in a large, public, highly diverse university, 89.8% of students surveyed reported never using food pantries and 47.8% of students did not know campus pantries existed; one-third of respondents reported barriers to accessing on-campus food pantries, including not knowing locations or whether they were eligible to use them, the social stigma of being perceived as poor, difficulty with transportation to carry food back home, and lack of time.

Efforts to reduce such barriers may be especially critical for students with social identities that we found to be disproportionately impacted by food insecurity, including students of color, first-generation students, and LGBTQIA+ students. While it is important for universities to communicate to all students about the availability of food resources, specific communication channels can also be used to reach the student populations most vulnerable to food insecurity. Our results suggest that outreach should be conducted through the

financial aid office as well as through student development programs and student clubs that engage students of color, first-generation students, and LGBTQIA+ students. Since we conducted our survey, the Loyola University Chicago webpage for food security resources has been updated with external resources, such as links to the student qualifications for the Supplemental Nutrition Assistance Program (SNAP) and citywide and national food bank finders. Nevertheless, our research and other findings suggest that additional efforts will be needed for the university to systematically address student food insecurity.

Universities also can complement their efforts to reach students disproportionately impacted by food insecurity with advocacy to ensure universal food access through state and federal resources. College students are experiencing proportionately higher rates of food insecurity than the national population (Bruening et al., 2016; McArthur et al., 2018). Yet, until recently, SNAP eligibility requirements have excluded the majority of college students (Mialki, et al., 2021). Before January 2021, to qualify for SNAP students needed to work 20 hours per week in addition to being enrolled less than half-time at their college. If a student chose to decrease their course load in order to qualify for SNAP, they would extend the time to earn their degree. A student could be forced to choose between prioritizing education or food, a choice no one should have to make. In January 2021, the Biden administration expanded SNAP eligibility for students who are eligible to participate in state or federally financed work-study during the academic year. In addition, the administration expanded SNAP benefits for students who had no expected family financial contribution in the current academic year (U.S Department of Education, 2021). To reduce food insecurity among college students, it will be important to retain these changes post-pandemic and consider further expanding SNAP eligibility criteria for students.

We found that food insecurity affects students across a large range of household incomes. This suggests that factors besides income are also at play, such as the rising cost of college tuition, which makes balancing college expenses with food expenditures challenging. Legislation in response to

the pandemic, like the CARES Act and expanded SNAP eligibility (Laska et al., 2020; Soldavini, 2021), does not address the rising cost of college tuition. The long-term federal and state policy approaches to support food-insecure college students that are urgently needed may need to incorporate a plan for tuition reduction.

Conclusion

To help understand the impact of the COVID-19 pandemic on reported food security among college students, we surveyed students at a private university in a large metropolitan region of the midwestern United States about their food security status during the pandemic as compared to prior to it. Food insecurity worsened for 29.64% of students who responded. We found statistically significant associations between decrease in food security and financial variables (household income, loss or family loss of employment because of the pandemic, receiving financial aid), health (infection or family infection with COVID-19, perceived health during the pandemic, eating 4.5 cups of fruits and vegetables each day), and social identity (race and ethnicity, first-generation to attend college, and sexual orientation) factors. Our results are consistent with

other studies that indicate that the pandemic has worsened food insecurity for marginalized groups, which already experienced higher food insecurity rates pre-pandemic due to structural racism and/or other social determinants (Morales et al., 2020; Odoms-Young & Bruce, 2018). We also examined the association between sexual orientation and food security among college students. LGBTQIA+ students were more likely to report a decrease in food security during the pandemic than their heterosexual peers. Our results confirm the need for greater action by higher education institutions, as well as state and federal governments, to support students in achieving food security. They also highlight the necessity of interventions—and future research—that attend not only to immediate symptoms of food insecurity, but also the underlying structural discrimination (Odoms-Young & Bruce, 2018) that makes it more difficult for members of marginalized groups to be food secure. ▪

Acknowledgments

References

Brito-Silva, F. de K., Wang, W., Moore, C. E., Warren, C., Miketinas, D. C., Tucker, W. J., & Davis, K. E. (2022). College campus food pantry program evaluation: What barriers do students face to access on-campus food pantries? *Nutrients*, *14*(14), 2807, 1-15. https://doi.org/10.3390/nu14142807

Bruening, M., Brennhofer, S., Van Woerden, I., Todd, M., & Laska, M. (2016). Factors related to the high rates of food insecurity among diverse, urban college freshmen. *Journal of the Academy of Nutrition and Dietetics*, *116*(9), P1450-P1457. https://doi.org/10.1016/j.jand.2016.04.004

Bruening, M., Argo, K., Payne-Sturges, D., & Laska, M. N. (2017). The struggle is real: A systematic review of food insecurity on postsecondary education campuses. *Journal of the Academy of Nutrition and Dietetics*, *117*(11), 1767-1791. https://doi.org/10.1016/j.jand.2017.05.022

Cady, C. L. (2014). Food insecurity as a student issue. *Journal of College and Character*, *15*(4), 265-272. https://doi.org/10.1515/jcc-2014-0031

Carlsten, C., Gulati, M., Hines, S., Rose, C., Scott, K., Tarlo, S. M., & de la Hoz, R. E. (2021). COVID-19 as an occupational disease. *American Journal of Industrial Medicine*, *64*(4), 227-237. https://doi.org/10.1002/ajim.23222

Coleman-Jensen, A., Gregory, C., & Singh, A. (2014). *Household food security in the United States in 2013* (ERR No. 173).U.S. Department of Agriculture Economic Research Service. https://doi.org/10.2139/ssrn.2504067

Coleman-Jensen, A. & Nord, M. (2013). *Food insecurity among households with working-age adults with disabilities* (ERR No. 144).U.S. Department of Agriculture Economic Research Service. https://doi.org/10.2139/ssrn.2202869

Crutchfield, R. M., Carpena, A., McCloyn, T. N., & Maguire, J. (2020). The starving student narrative: How normalizing deprivation reinforces basic need insecurity in higher education. *Families in Society: The Journal of Contemporary Social Services*, *101*(3), 409-421. https://doi.org/10.1177/1044389419889525

Davitt, E. D., Heer, M. M., Winham, D. M., Knoblauch, S. T., & Shelley, M. C. (2021). Effects of COVID-19 on university student food security. *Nutrients*, *13*(6), 1932, 1-15. https://doi.org/10.3390/nu13061932

Economic Research Service. (2012). *U.S Adult Food Security Survey Module: Three-stage design, with screeners.* U.S. Department of Agriculture. https://www.ers.usda.gov/media/8279/ad2012.pdf

Gibbs, J. K., Shokoohi, M., Salway, T., & Ross, L. E. (2021). Sexual orientation–based disparities in food security among adults in the United States: Results from the 2003–2016 NHANES. *The American Journal of Clinical Nutrition*, *114*(6), 2006-2016. https://doi.org/10.1093/ajcn/nqab290

Glantsman, O., McGarity-Palmer, R., Swanson, H. L., Carroll, J. T., Zinter, K. E., Lancaster, K. M., & Berardi, L. (2022). Risk of food and housing insecurity among college students during the COVID-19 pandemic. *Journal of Community Psychology*, 50(6), 2726-2745. https://doi.org/10.1002/jcop.22853

Goldrick-Rab, S., Coca, V., Gill, J., Peele, M., Clark, K., & Looker, E. (2022). Self-reported COVID-19 infection and implications for mental health and food insecurity among American college students. *Proceedings of the National Academy of Sciences*, *119*(7), e2111787119, 1-3. https://doi.org/10.1073/pnas.2111787119

Gould, E. L., & Wilson, V. (2020). *Black workers face two of the most lethal preexisting conditions for coronavirus¾Racism and economic inequality* [Report]. Economic Policy Institute. https://www.epi.org/publication/black-workers-covid/

Henry, L. (2017). Understanding food insecurity among college students: Experience, motivation, and local solutions. *Annals of Anthropological Practice*, *41*(1), 6-19. https://doi.org/10.1111/napa.12108

Kimani, M. E., Sarr, M., Cuffee, Y., Liu, C., & Webster, N. S. (2021). Associations of race/ethnicity and food insecurity with COVID-19 infection rates across US counties. *JAMA Network Open*, *4*(6), e2112852, 1-11. https://doi.org/10.1001/jamanetworkopen.2021.12852

Laska, M. N., Fleischhacker, S., Petsoulis, C., Bruening, M., & Stebleton, M. J. (2020). Addressing college food insecurity: An assessment of federal legislation before and during coronavirus disease-2019. *Journal of Nutrition Education and Behavior*, *52*(10), P982-P987. https://doi.org/10.1016/j.jneb.2020.07.001

Lauren, B. N., Silver, E. R., Faye, A. S., Rogers, A. M., Woo-Baidal, J. A., Ozanne, E. M., & Hur, C. (2021). Predictors of households at risk for food insecurity in the United States during the COVID-19 pandemic. *Public Health Nutrition*, *24*(12), 3929-3936. https://doi.org/10.1017/S1368980021000355

Lee-Kwan, S. H., Moore, L. V., Blanck, H. M., Harris, D. M., & Galuska, D. (2017). Disparities in state-specific adult fruit and vegetable consumption—United States, 2015.. *Morbidity and Mortality Weekly Report (MMWR)*, *66*(45), 1241-1247. https://doi.org/10.15585/mmwr.mm6645a1

Leung, C. W., & Tester, J. M. (2019). The association between food insecurity and diet quality varies by race/ethnicity: an analysis of National Health and Nutrition Examination Survey 2011-2014 results. *Journal of the Academy of Nutrition and Dietetics*, *119*(10), P1676-P1686. https://doi.org/10.1016/j.jand.2018.10.011

Little, T. D., Chang, R., Gorrall, B. K., Waggenspack, L., Fukuda, E., Allen, P. J., & Noam, G. G. (2020). The retrospective pretest–posttest design redux: On its validity as an alternative to traditional pretest–posttest measurement. *International Journal of Behavioral Development*, *44*(2), 175-183. https://doi.org/10.1177/0165025419877973

Maroto, M. E., Snelling, A., & Linck, H. (2015). Food insecurity among community college students: Prevalence and association with grade point average. *Community College Journal of Research and Practice*, *39*(6), 515-526. https://doi.org/10.1080/10668926.2013.850758

Marshall, T. A., Zheng, R., Anderson, C. L., Handoo, N., & Qian, F. (2021). Is food insecurity a barrier to dental student success? *Journal of Dental Education*, *85*(9), 1518-1524. https://doi.org/10.1002/jdd.12623

McArthur, L. H., Ball, L., Danek, A. C., & Holbert, D. (2018). A high prevalence of food insecurity among university students in Appalachia reflects a need for educational interventions and policy advocacy. *Journal of Nutrition Education and Behavior*, *50*(6), P564-P572. https://doi.org/10.1016/j.jneb.2017.10.011

McCarthy, A. C., Belarmino, E. H., Bertmann, F., & Niles, M. T. (2022). Food security impacts of the COVID-19 pandemic: Longitudinal evidence from a cohort of adults in Vermont during the first year. *Nutrients*, *14*(7), 1358, 1-19. https://doi.org/10.3390/nu14071358

Mei, J., Fulay, A., & Leung, C. (2020). Associations between college-student food insecurity and diet at a large, public Midwestern university. *Current Developments in Nutrition, 4*(Suppl. 2), 243. https://doi.org/10.1093/cdn/nzaa043_094

Meza, A., Altman, E., Martinez, S., & Leung, C. W. (2019). "It's a feeling that one is not worth food": A qualitative study exploring the psychosocial experience and academic consequences of food insecurity among college students. *Journal of the Academy of Nutrition and Dietetics*, *119*(10), P1713-P1721. https://doi.org/10.1016/j.jand.2018.09.006

Mialki, K., House, L. A., Mathews, A. E., & Shelnutt, K. P. (2021). Covid-19 and college students: Food security status before and after the onset of a pandemic. *Nutrients*, *13*(2), 628, 1-13. https://doi.org/10.3390/nu13020628

Michaels, D., & Wagner, G. R. (2020). Occupational Safety and Health Administration (OSHA) and worker safety during the COVID-19 pandemic. *JAMA*, *324*(14), 1389-1390. https://doi.org/10.1001/jama.2020.16343

Morales, D. X., Morales, S. A., & Beltran, T. F. (2021). Racial/ethnic disparities in household food insecurity during the COVID-19 pandemic: A nationally representative study. *Journal of Racial and Ethnic Health Disparities 8*(5), 1300-1314. https://doi.org/10.1007/s40615-020-00892-7

Nazmi, A., Martinez, S., Byrd, A., Robinson, D., Bianco, S., Maguire, J., Crutchfield, R. M., Condron, K., & Ritchie, L. (2019). A systematic review of food insecurity among US students in higher education. *Journal of Hunger & Environmental Nutrition*, *14*(5), 725-740. https://doi.org/10.1080/19320248.2018.1484316

Nikolaus, C. J., An, R., Ellison, B., & Nickols-Richardson, S. M. (2020). Food insecurity among college students in the United States: A scoping review. *Advances in Nutrition*, *11*(2), 327-348. https://doi.org/10.1093/advances/nmz111

Odoms-Young, A., & Bruce, M. A. (2018). Examining the impact of structural racism on food insecurity: Implications for addressing racial/ethnic disparities. *Family and Community Health*, *41*(Suppl. 2), S3-S6. https://doi.org/10.1097/FCH.0000000000000183.

Office of Institutional Effectiveness. (2019). *Annual report on diversity Loyola University Chicago 2018-19*. https://www.luc.edu/media/lucedu/diversityandinclusion/2018-19-Diversity-Report.pdf

Owens, M. R., Brito-Silva, F., Kirkland, T., Moore, C. E., Davis, K. E., Patterson, M. A., Miketinas, D. C., & Tucker, W. J. (2020). Prevalence and social determinants of food insecurity among college students during the COVID-19 pandemic. *Nutrients*, *12*(9), 2515, 1-17. https://doi.org/10.3390/nu12092515

Payne-Sturges, D. C., Tjaden, A., Caldeira, K. M., Vincent, K. B., & Arria, A. M. (2018). Student hunger on campus: Food insecurity among college students and implications for academic institutions. *American Journal of Health Promotion*, *32*(2), 349-354. https://doi.org/10.1177/0890117117719620

Soldavini, J., Berner, M., & Da Silva, J. (2019). Rates of and characteristics associated with food insecurity differ among undergraduate and graduate students at a large public university in the Southeast United States. *Preventive Medicine Reports*, 14, 100836, 1-8. https://doi.org/10.1016/j.pmedr.2019.100836

Soldavini, J., Andrew, H., & Berner, M. (2021). Characteristics associated with changes in food security status among college students during the COVID-19 pandemic. *Translational Behavioral Medicine*, *11*(2), 295-304. https://doi.org/10.1093/tbm/ibaa110

U.S. Department of Education. (2021, February 23). *Education Department amplifies USDA expansion of SNAP benefits to help students pursuing postsecondary education during pandemic* [Press release]. https://www.ed.gov/news/press-releases/education-department-amplifies-usda-expansion-snap-benefits-help-students-pursuing-postsecondary-education-during-pandemic

Watson, T. D., Malan, H., Glik, D., & Martinez, S. M. (2017). College students identify university support for basic needs and life skills as key ingredient in addressing food insecurity on campus. *California Agriculture*, *71*(3), 130-138. https://doi.org/10.3733/ca.2017a0023

Wolfson, J. A., & Leung, C. W. (2020). Food insecurity and COVID-19: Disparities in early effects for US Adults. *Nutrients*, *12*(6), 1648, 1-13. https://doi.org/10.3390/nu12061648

Appendix

List of university groups and university departments with whom we directly shared the questionnaire. In parentheses we mention if any of these groups declined to share.

- Agape Christian Fellowship
- Agape Latte
- Alpha Chi Omega
- Alpha Delta Phi
- Alpha Kappa Alpha
- Alpha Kappa Psi, Business Fraternity
- Alpha Phi Alpha Fraternity
- Alpha Phi Omega
- Alpha Phi Sigma
- Alpha Psi Lambda National
- Alpha Sigma Alpha
- Alternative Break Immersion
- AMDG Catholic Student Group
- American Medical Association
- American Medical Student Association
- American Medical Women's Association
- Amnesty International
- ASEZ: Save the Earth from A to Z
- Asian Pacific American Medical Student Association
- Association of Latino Professionals for America
- Beta Beta Beta
- Beta Theta Pi
- Black Cultural Center
- Building the Next Generation of Academic Physicians
- Campus Ministry
- Catholic Medical Association
- Challenging Antiquated Norms for Gender Equality
- Chi Alpha Christian Fellowship
- Chi Omega Fraternity-Lambda Mu Chapter
- Chinese Student Association
- Christian Life Communities at Loyola University Chicago
- College of Arts and Sciences (declined to share the survey)
- College Republicans
- Community Service and Action
- Commuter Student Life
- CRU Christian Campus Ministry
- Culture in Medicine
- Delta Phi Lambda Sorority
- Delta Sigma Phi
- Delta Sigma Pi, Business Fraternity
- Delta Sigma Theta Sorority
- Engineers for Social Justice
- Enrich Urban Farming and Gardening
- Evolutionary Medicine
- Feminist Forum
- Femme International LUC Student Ambassadors
- Food Recovery Network
- GlobeMed: Loyola University Chicago Chapter
- Graduate Women in Business
- Graduate School
- Group for Environmental Medicine and Sustainability
- Grower's Guild
- Habitat for Humanity LUC
- Healthcare Administration Student Council
- Hellenic Student Association
- Hillel at Loyola
- Hindu Students' Organization
- Homeless not Hopeless
- Honors Student Association
- Housing Forward
- IGNITE LUC
- Japanese Student Organization
- Kappa Delta
- Kappa Kappa Gamma
- Kapwa Filipinx-American Student Association
- Korean Student Organization
- Labre Homeless Ministry
- Lambda Phi Epsilon
- Lambda Theta Alpha
- Latin American Student Organization
- Leading Women of Tomorrow
- Loyola-Israel Student Alliance
- Loyola Initiative for Global Health Transformation

- Loyola PreMedLife
- Loyola Student COVID Response Team
- Loyola Students 4 Edgewater Neighborhood Schools
- Loyola University Chicago Empowering Sisterhood
- Loyola University Chicago Puerto Rican Student Association
- Loyola 4 Chicago
- LUC Indian Student Association
- LUC Naach Bollywood Fusion Dance Team
- LUC Public Health Club
- Medical Student Union
- Mexican American Student Association
- Middle Eastern Student Association
- Minority Association of Premedical Students
- Mixed Heritage Union
- Model U.N.
- Multicultural Greek Council
- Muslim Medical Student Association
- Muslim Students' Association
- National Arab American Medical Association NextGen
- National Residence Hall Honorary
- National Society of Collegiate Scholars
- Neighborhood Health Initiative
- Net Impact
- Office of Institutional Effectiveness (declined to share the survey without edits on their part)
- Office of the Dean of Students
- Pakistani Student Association
- Panhellenic Council
- Parkinson School of Health Sciences and Public Health
- Phi Delta Epsilon
- Phi Sigma Sigma
- Pi Kappa Phi Fraternity
- Polish Student Alliance
- Pre-Law Minority Student Association
- Pre-Law Society
- Quinlan School of Business
- PRISM: A Queer People of Color Support Group

- Rainbow Connection
- Residence Life
- Restoration Club
- Retreats
- School of Communication
- School of Continuing and Professional Studies
- School of Education
- School of Environmental Sustainability
- School of Law
- School of Social Work
- Sigma Chi
- Sikh Student Organization
- Society of Women's Health
- Sri Lankan Student Association
- Stritch Pride
- Student Activities and Greek Affairs
- Student Diversity and Multi-cultural Affairs
- Student Environmental Alliance
- Student Government of Loyola Chicago
- Student National Medical Association
- Student Wellness Advisory Group
- Students for National Health Program
- Students for Justice in Palestine
- Students for Recovery Loyola
- Students for Sustainable Energy through Anaerobic Digestion
- Students Organize for Syria
- Tau Kappa Epsilon
- The Body Project
- The Loyola Alliance of Socialists
- Theta Alpha Kappa
- UNICEF of Loyola
- Vietnamese Student Association
- We Are Able LUC
- weDignify at Loyola: Students for Life
- White Coats for Black Lives Chapter at Loyola University Chicago Stritch School of Medicine
- Women in Business
- Women in Leadership Loyola
- Women in Science and Math
- Zeta Phi Beta Sorority

SPECIAL SECTION SPONSORED BY

From food access to food sovereignty: Striving to meet university student needs

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Abstract

The ongoing neoliberalization of higher education has meant that college and university students at state institutions face declining state support for their education, increasing debt, precarious post-graduation job opportunities, and a dominant cultural emphasis on personal responsibility rather than collective care. These neoliberal conditions exacerbate structural inequities (along various axes, including race, economic status, disability, etc.) within student populations. This paper explores two aspects of inequity in food insecurity among students: specific challenges and inequities students face by virtue of their position as college students, and intersectional inequities faced by some students by virtue of other identities to which they belong. This paper presents findings from two

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research efforts at Western Washington University, a public university in the USA Pacific Northwest. First, we share findings from a 2018 qualitative, interview-based study of food-insecure students on the campus. We then draw from our experiences as practitioners and present critical reflections on our own campus food security efforts, differentiating between those that address food security (access), food justice, and food sovereignty. Our findings from the qualitative study suggest that students feel a sense of personal responsibility for their food insecurity, and that food-insecure students both rely on social networks for support and feel stigmatized by their food insecurity. Our critical reflections on campus programs reveal that most of the traditional food security efforts (e.g. emergency aid, food pantries) neglect to either effectively support BIPOC students and others most affected by food insecurity, or provide a sustained community-support mechanism for food-insecure students in general. We position food sovereignty-oriented programs as a way forward in addressing the intersectional inequities faced by students, and also in bolstering communities of support.

Keywords
Food Insecurity, Food Justice, Food Sovereignty, Higher Education, Campus Farm, Food Pantries, Neoliberalism, Washington State, United States, Qualitative Research

Introduction
In 2020, 39% of U.S. college students at two-year institutions and 29% at four-year institutions experienced food insecurity (Hope Center for College, Community, and Justice, 2021). Food insecurity on college campuses is inseparable from the cultural, political, and economic environment in which it takes place. Neoliberalism has come to dominate not just the political and economic arenas but social and cultural spheres as well (Duggan, 2012; Harvey, 2005; Wilson, 2017). Neoliberalism is a hegemonic set of conditions characterized by a sharp decline of government regulations and safety nets that protect individuals in favor of policies and regulations that facilitate "free" markets, thus rhetorically reducing individuals to rational economic actors rather than recognizing them as citizens of the state (Harvey, 2005; Wilson, 2017). Neoliberalism has strongly influenced the experiences of U.S. college and university students, especially at public institutions, as states have reduced their support for public higher education and shifted the financial burdens onto individual students. Neoliberalism has impacted private institutions and the students enrolled in them, by treating "students as customers" and piling on campus amenities (luxury dorm rooms, shiny new student centers) to attract full tuition-paying students to their institutions (Mintz, 2021, p. 87).

Adjusted for inflation, tuition at public colleges and universities nationwide has quadrupled since 1970 and tripled since 1990 (Hanson, 2021), driven in large part by declining state support for higher education (Mitchell et al., 2019). Since the 1970s, there has been in addition a substantial shift from grant-based financial aid to loan-based aid (Saunders, 2010). Average undergraduate loan debt at graduation in the U.S. rose from US$5,060 per student in 1975 to $31,100 in 2021, adjusted for inflation (Hanson, 2021). Federal financial support for higher education has a smaller impact than it once did, because public university tuition has multiplied over the last two decades and grants have not kept pace. In the 2001−2002 school year, the maximum Pell Grant was US$5,690 (2021 dollars), and the average cost of a public four-year university including tuition and housing costs was US$13,710 (2021 dollars). In the 2021−2022 school year, the Pell maximum has risen to US$6,495, while average public university costs have increased to US$22,690 (Ma & Pender, 2021). Where state and federal programs formerly paid higher proportions of their educational expenses, students increasingly rely on loans (Ma &Pender, 2021).

Getting by on financial aid dollars or wages from part-time work became more challenging for college students during the Great Recession, partly because "parents have fewer resources to help out, there is greater competition for work-study jobs, and many schools have increased tuition to cover their expenses" (Robbins, 2010, para. 4). In addition to working more hours while in school and facing increasing levels of post-graduation debt, students also face an uncertain employment future. High student loan debt can force students to

choose a vocation based solely on ability to pay back loans (Giroux, 2002). Students are living in an age of precarity, characterized by uncertainty about the availability of employment and social support resources, with material, cultural, and emotional implications (Wilson, 2017). Declining state support for universities has also led public institutions of higher education to pursue revenue-generating strategies, including contracting out housing and dining services to large corporations (Marcus, 2021). Under these conditions, students are viewed as customers (Giroux, 2002; Saunders, 2010). They are seen "less like members of a community of learners and more like individuals focused on enhancing their human capital and who are solely responsible and accountable to themselves" (Saunders, 2010, p. 63). Under neoliberalism, state-supported safety nets are declining just as self-help strategies and the misguided notion of "pulling oneself up by the bootstraps" are becoming a common moral grounding (Duggan, 2012).

At the same time that state resources for public education have been dwindling, state institutions have been increasing their enrollment of first-generation and BIPOC college students, both from desire to do right by historically marginalized groups and from need for tuition dollars. Many students from these backgrounds lack the financial resources and familial wealth that an average college student in the past could rely upon. For example, a report from the 2019 National Association of Student Financial Aid Administrators showed that Black students struggled with loan debt more than other racial groups, with a higher percent of Black students taking out loans, a higher average debt per borrower for Black students, a lower percentage of Black students graduating with no debt, and an increased difficulty in repaying loans compared to other racial groups (Fredman, 2019).

These political economic conditions have created systemic food insecurity inequities and challenges for college students *by virtue of being public university students*. A recent survey of 86,000 students from 123 public and private U.S. colleges and uni-

versities by the Hope Center for College, Community, and Justice found 45% of respondents to be food insecure in the month preceding the study (Goldrick-Rab et al., 2019).[1] Food insecurity rates tend to be higher among students at two-year institutions and historically Black colleges and universities (HBCUs) (Hagedorn-Hatfield et al., 2022). While another recent study using nationwide data suggests that college students do not face higher rates of food insecurity than nonstudents (Gundersen, 2021), student experiences with food insecurity and the strategies used to address it are different than those in nonstudent populations. Food insecurity forces students to navigate damaging trade-offs in a zero-sum game: time spent studying or attending classes competes with time students could be working for income (Henry, 2017). In one study, working students were twice as likely to experience food insecurity than those who did not have a job, suggesting that for students "working their way through college" the combination of income from financial aid and jobs is insufficient to meet their needs (Patton-López et al., 2014). These conditions are exacerbated by increasing housing costs in many college towns (Trapasso, 2021). Students experiencing food insecurity are also more likely to struggle academically, usually with adverse impacts on GPA (Goldrick-Rab, Richardson et al., 2018; Maroto et al., 2015; Morris et al., 2016; Patton-López et al., 2014) and time-to-graduation (Broton & Goldrick-Rab, 2017; Martinez et al., 2018).

The neoliberalization of higher education also exacerbates existing structural inequities, creating *intersectional inequities* in food security among college students. An intersectional lens acknowledges the overlapping ways in which oppression acts along multiple axes of identity (Crenshaw, 1989). For example, first-generation college students and those with minoritized racial identities are at greater risk for food insecurity (Goldrick-Rab et al., 2019; Morris et al., 2016; Payne-Sturges et al., 2018), as are women, queer students, trans and gender nonbinary students, students with disabili-

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[1] The largest food insecurity studies lump private and public universities together, making it difficult to determine whether students at public institutions experience higher rates of food insecurity than those at private colleges and universities.

ties, students with children, students eligible for Pell grants, and older students (Goldrick-Rab et al., 2019). At public institutions, 40% of grant money goes to "high-achieving" students, a designation that tends to track with identities of privilege; relatively wealthy students also tend to receive larger grants (Barnes & Harris, 2010; Dillon & Cary, 2009; Mintz, 2021).

Despite the hunger faced by many college students, federal food assistance programs and local food banks are not common coping strategies for food-insecure college students (Broton & Goldrick-Rab, 2017; Goldrick-Rab et al., 2019; Waity et al., 2020). Full-time college students typically are ineligible for federal food assistance through SNAP (Supplemental Nutrition Assistance Program). Though temporary exemptions were granted during the COVID-19 pandemic, these policies are built upon the false assumption that most students are financially supported by their parents (Landry et al., 2021). Quite counter to that assumption, in 2016 a quarter of college and university students worked full time (U.S. Government Accountability Office, 2018). Food-insecure students also often face cost-prohibitive on-campus meal plans; at some institutions, students "appear to be forking out 70 percent more per day on campus than they would likely pay to cook and eat on their own" (Mathewson, 2017, para. 7). That many institutions require students to participate in meal plans, which most colleges and universities contract with three large private companies to provide, and often while removing access to communal dorm kitchens to make more space for student housing, is another example of the emphasis on forced participation in markets inherent to the neoliberal era (Anderson, 2021).

Existing research on food security among college students provides strong empirical documentation of a growing crisis, but has fallen short in exploring the nuances of student perspectives and experiences in navigating food insecurity, including within the neoliberal context of economic precarity and individualization, and the support mechanisms for food- insecure students with consideration of both *intersectional* inequities and the inequities faced by students *by virtue of being students*. While statistical findings are important in revealing trends and prev-

alences in food insecurity, quantitative approaches do not always acknowledge the moral urgency of this crisis, nor do they provide a nuanced understanding of the variety of student experiences and needs. Few published studies in this area have focused on the experiences and voices of food-insecure students (Henry, 2017; Stebelton et al., 2020; Wells-Edwards, 2020); only one of which we are aware of has specifically examined the experiences of students vis-à-vis neoliberal conditions in higher education (Schraedley et al., 2021). In addition, despite widespread concern about food insecurity in higher education, few studies have described or reflected on student support mechanisms, e.g., on-campus food pantries, nutrition literacy education, meal vouchers, emergency cash, and campus gardens (Davis et al., 2021; Goldrick-Rab et al., 2018; Landry et al., 2021). Examination of targeted support for students with marginalized identities is particularly lacking. In this paper, we emphasize that making sure that students are adequately fed in an era of neoliberal higher education requires addressing both sets of food security inequities: those affecting students *by virtue of being* students (especially those at public institutions) and those *intersectional* inequities that have been exacerbated under the current political and economic regime.

Scholars of food insecurity and access frequently describe mitigation programs with a three-part typology: those that emphasize food security (access), those that strive for food justice, and those that seek to promote food sovereignty (Holt-Giménez, 2010). These three categories can describe any effort to address food insecurity; we apply them to the college and university context. Food security (access) programs are efforts that put financial resources and/or food in the hands of people who need it; within this framework, a "lack of food security is largely understood as an 'access' issue" (Noll & Murdock, 2020, p. 3). While these efforts often provide vital material benefits to individuals, they do little to address the underlying structures of neoliberalism that created conditions of food insecurity in the first place, nor do they tend to engage those affected by food insecurity in decision-making processes (Holt-Giménez, 2010). These programs are temporary fixes that are often

short-lived, underfunded and therefore unsustaina-
ble: they are necessary, but not sufficient if the
underlying causal mechanisms for food insecurity
remain unaddressed (Holt-Giménez & Shattuck,
2011). Food access programs stand to ameliorate
food insecurity for students as a group, but such
programs do little to address intersectional inequi-
ties, as they do not explicitly address needs of indi-
viduals with marginalized identities, nor do they
address underlying structural causes of inequity.

Food justice efforts, on the other hand, "seek to
address injustices that disproportionately impact
upon people based on race and class" (Clenden-
ning et al., 2016, p. 170) and emphasize the "right
to food" (Holt-Giménez, 2010, p. 3). Within a food
justice context, particular attention is paid to the
needs of individuals with marginalized identities,
but those people are not always at the decision-
making table. Food justice efforts often provide
alternatives to corporate food regimes and neo-
liberal conditions without directly challenging them
(Clendenning et al., 2016). In other words, food
justice efforts reflect a progressive political stance
that attempts to create just food provisioning sys-
tems without addressing the foundational causes of
food insecurity (Holt-Giménez, 2010).

Food sovereignty is a more politically radical
approach that emerged from peasant farmer move-
ments in the Global South like La Via Campesina
(Holt-Giménez, 2010). Food sovereignty is the
"right of peoples to healthy and culturally appro-
priate food produced through ecologically sound
and sustainable methods, and their right to define
their own food and agriculture systems" (Declara-
tion of Nyéléni, 2007, p. 1). In contrast with food
justice efforts, within the food sovereignty para-
digm communities *are* the food systems decision-
making table. Food sovereignty efforts sometimes
conceptualize food provisioning within a gift
economy. Potawatomi scholar-author Robin
Kimmerer describes how the gift economy oper-
ates: "gifts from the earth or from each other
establish a particular relationship, an obligation of
sorts to give, to receive, and to reciprocate" (2013,
p. 25). The obligations are not financial, but social
and reciprocal. A gift economy is a social commu-
nity with "ongoing relationships" (2013, p. 26).
While food sovereignty movements aim to disrupt

the underlying structures that create conditions of
persistent food insecurity, their radical nature is
often challenged by the "omnipotence of the cor-
porate food regime" that shapes both discourse
and practice even of food sovereignty efforts
(Clendenning et al., 2016, p. 175).

With the consequences of neoliberalism as the
backdrop, this paper integrates two research efforts
that aimed to better understand college student
food insecurity at Western Washington University
(WWU) in Washington State, U.S. We examine
how students experience, navigate, and cope with
food insecurity, and how programs to address food
insecurity on our campus support these students.
We hope that this research and critical reflection
will inform efforts across other college and
university campuses.

Methods
This paper draws from two related research efforts:
a 2018 study of students experiencing food insecu-
rity on our campus, and (2) a critical reflection
drawing from the authors' own experiences sup-
porting food-insecure students during the COVID-
19 pandemic. The authors of this paper write from
their positions as faculty member, staff members
who run many of the programs described here, and
recent alumni. We draw from the transformative
research paradigm (Mertens, 2008), which focuses
on the lived experiences of our research subjects
and gives voice to these students, who often have
limited power in the operations of colleges and
universities. Our approach acknowledges that
objectivity is not entirely possible nor desirable
(Dominguez-Whitehead, 2017); instead, we aim to
first understand the experiences of food-insecure
students and then to critically examine support
efforts in place, with the goal of using this infor-
mation to enact change on our campus and at
other colleges and universities.

In 2018, a subset of the authors conducted a
qualitative research study aimed at better under-
standing student experience with food insecurity
at WWU, a public university in Bellingham with
16,121 students (95% undergraduate, 5% Masters)
in 2018/ 2019 (Office of Institutional
Effectiveness, 2022a). As at other U.S. colleges
and universities, WWU students face burdens of

neoliberalism: increased student loans, unaffordable local housing, and high rates of food insecurity. Even at a relatively low-cost public institution like WWU, where in-state tuition was roughly US$8K per year and out-of-state tuition US$23K per year in 2018/ 2019, students are likely to emerge with tremendous student debt. Graduating students in 2014/2015 faced an average debt of US$17,050; although 37% of students face no debt at all, the average for those with debt is US$29,479 (Krieg et al., 2015). In 2019 39% of students at WWU experienced low or very low levels of food security, higher than the average rate of food insecurity (33%) at other four-year institutions (Hope Center, 2020). Certain WWU groups have particularly high (>50%) rates of food insecurity: nonbinary students, queer students, Black students, Indigenous students, students who receive Pell grants, students with children, students who have been in foster care, and students with a learning disability (Table 1). While not included in Table 1, housing insecurity (49% of students) and homelessness (19% of students) also intersect with food insecurity challenges at WWU: 28% of students experience both food and housing insecurity and 11% of students experience both food insecurity and homelessness (Hope Center, 2020).

The 2018 study drew from the population of undergraduate students at Western Washington Uni-

versity who experience food insecurity as defined by the U.S. Department of Agriculture (Bickel et al., 2000). Participants were recruited through fliers posted around campus that provided a link for potential participants to take an online screening survey through Qualtrics. A convenience sample of

Table 1. Food Insecurity Rates at WWU by Category, 2019

	Category (n)	Food Insecurity (%)
Total		**44%**
Gender identity	Male (433)	35%
	Female (973)	39%
	Nonbinary/Third gender (68)	60%
	Prefers to self-describe (14)	64%
Transgender identity	Identifies as transgender (37)	41%
	Does not identify as transgender (1,399)	38%
Sexual orientation	Heterosexual or straight (888)	34%
	Gay or lesbian (80)	53%
	Bisexual (334)	46%
	Prefers to self-describe (101)	50%
Racial or ethnic background	White or Caucasian (1,261)	37%
	African American or Black (41)	54%
	Hispanic or Latinx (132)	49%
	American Indian or Alaskan Native (43)	42%
	Indigenous (23)	70%
	Middle Eastern or North African or Arab or Arab American (15)	20%
	Southeast Asian (67)	34%
	Pacific Islander or Native Hawaiian (27)	33%
	Other Asian or Asian American (108)	41%
	Other (40)	38%
Student receives the Pell Grant	Yes (412)	51%
	No (980)	35%
Student has children	Yes (44)	55%
	No (1,497)	38%
Student has been in foster care	Yes (18)	56%
	No (1,437)	38%
Student has been in military	Yes (13)	46%
	No (1,441)	38%
Disability or medical condition	Learning disability (261)	52%
	Physical disability (79)	47%
	Chronic illness (220)	44%
	Psychological disorder (722)	47%
	Other disability or condition (34)	44%
	No disability or medical condition (582)	29%

Data source: Hope Center for College, Community, and Justice. (2020, January). *2019 #RealCollege survey results: Institution report for Western Washington University.*

21 food-insecure students participated in 25–55-minute semi-structured interviews, building on a Texas study of food-insecure students (Henry, 2017); interview questions focused on causes of food insecurity, coping strategies, impacts, and support. We recorded and took notes during the interviews, and collected limited demographic information from participants via a paper survey administered after each interview. Following similar studies (Henry, 2017; Stebelton et al., 2020; Wells-Edwards, 2020), an emergent, qualitative research methodology (Bernard, 2017; Cresswell, 2014) with a small sample size allowed for more in-depth exploration of student experiences than

would be achieved through a larger survey. All 21 participants were undergraduate students who scored either "very low" or "low" levels of food security, according to the USDA household scale (USDA Economic Research Service, 2022). The sample largely mirrors the demographics of under-graduate students at WWU (Table 2). Using the online application Dedoose, we applied both inductive and deductive qualitative research analy-sis techniques to the transcribed interviews, starting with an initial set of codes based on the interview questions and previous studies, then adding and adjusting in subsequent coding iterations (Bernard, 2017).

The WWU Office of Research and Sponsored Programs Institutional Review Board deemed this an exempt project, meaning that the study posed minimal risks to partici-pants. Participants were provided a US$30-equivalent incentive and a list of on- and off-campus food assistance resources. We took standard measures to protect participant identities and strived to create a conversation space that respected their time and per-spectives. We share their stories and experiences with respect and gratitude.

In addition to the 2018 study of students experiencing food insecurity on our campus, this paper includes critical reflections based on the authors' roles as practitioners who have been involved in efforts to address food insecurity at WWU during the COVID-19 pandemic (2020–2022). We critically reflect on campus food security pro-grams by drawing from our own practitioner experiences and observations and by examining institutional data. The typology of food security— access, justice, and sovereignty (Holt-Giménez,

Table 2. Characteristics of Study Sample (*N*=21)

	Percentage of Study Sample (Frequency)	Percentage of WWU undergraduate students (2017) [a]
Gender		
Female	57% (12)	57%
Male	19% (6)	43%
Nonbinary/third gender	(2)	Not reported
Prefer not to answer	(1)	N/A
Racial identity		
White	71% (15)	72%
Asian/Asian American	10% (2)	11%
Hispanic/Latino	14% (3)	9%
Other	5% (1)	N/A
Housing		
I live by myself	29% (6)	Not reported
I live with family	5% (1)	Not reported
I live with roommates/friends	67% (14)	Not reported
I live off campus	76% (16)	88%
I live on campus	19% (4)	12%
I do not currently have a stable living situation	14% (3)	Not reported
Eligible for Federal Work-study funding		
Yes	29% (6)	
No	48% (10)	
Don't know	19% (4)	
Average Age	20.9	21.2

[a] Data source: Western Washington University Office of Survey Research. (2018). *Nutrition and food security—2017.* https://wp.WWU.edu/osr/2017/10/18/nutrition-and-food-security-spring-2017/

2010)—provides a framework for understanding the promise and limitations of food programs on our campus. We approach this critical reflection exercise in the spirit of institutional learning, whereby this reflection will strengthen our own efforts to address food insecurity within our institution and ultimately impact institutional practices.

Characterizing Campus Need: Results from a 2018 Study of Food-Insecure Students

Key themes that emerged from analysis of the 2018 interviews include the causes of food insecurity, coping strategies, social connectivity and stigma, impacts on students' lives, and personal responsibility. Participants identified a range of reasons for experiencing food insecurity, underscoring ways in which the neoliberal environment in higher education has contributed to food security inequities *by virtue of being students*: students are financially squeezed by needing to work to pay tuition and minimize loans while also facing high housing costs and expensive on-campus food options. Many participants held jobs, some more than part time while being a full-time student. Over half (62%, 13) mentioned place-based factors impacting ability to buy food, such as rising living expenses and lack of job opportunities; as one woman stated, "I think just the cost of living…rent in Bellingham is just so expensive compared to the minimum wage." As this participant noted, rental prices in Bellingham are high: over the last decade the fair market rent for a one-bedroom apartment has increased 47%. During the pandemic, rental increases ranged from 25% to 40% (Anderson, 2022).[2] Participants also identified the high price of dining meal plans and foods for purchase on campus as another challenge.

A preponderance of students interviewed (81%, 17) reported having little to no financial support of any kind from their families, suggesting *intersectional* inequities based on class. The data in Table 1 reinforce this finding: students receiving Pell Grants, an indicator of low socio-economic status, experience higher rates of food insecurity

than those who are not Pell-eligible. Most participants mentioned an unforeseen life event or expense, such as unemployment, bills, personal or family health issues, or a stolen vehicle, as responsible for their food insecurity. One student described a traumatic experience in their life that led to their food insecurity: "My mom had a pretty serious stroke and she was really the breadwinner of the family and God, we spent a lot of money on the surgery because she had a condition that is pretty rare." Without sufficient and sustained social safety nets, students navigate these challenges and their resulting food insecurity individually.

To navigate food insecurity, participants skipped meals, made strategic purchasing and budget decisions, limited their types of foods, and turned to social support networks. Some participants skipped meals to "save up" meal swipes on their dining plan, while others used this as a regular strategy to conserve food consumption. When asked how they navigate having limited resources for food, one participant said: "Basically, like eating maybe once a day. Like I just got paid so I'm going to be able to eat for like at least like the next two weeks. But then the last two weeks are basically like you eat once a day or like you don't really eat." Notably, less than a quarter of participants used formalized food assistance, such as food banks or SNAP benefits, and less than a third of participants had little knowledge of SNAP requirements or locations of community food banks. Over two-thirds of interview participants indicated that they experience strong feelings of stigma associated with being food insecure, consistent with the neoliberal emphasis on individual responsibility. Students largely felt that they are not among those for whom food assistance was intended; one participant described the challenge of figuring out "where to draw the line … when is it okay for me to ask for help for things that are designed for people who are way worse off than me?"

Social networks play a complicated role in the lives of food-insecure students. Despite their reluc-

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[2] Rising housing costs and relatively stagnant income levels contribute to high levels of food insecurity among nonstudent residents, as well.

tance to utilize formalized food assistance pro-
grams, two-thirds of students (62%, 13) identified
communities and relationships that help them cope
with food insecurity. For example, several partici-
pants were comfortable regularly asking friends or
strangers to "swipe them in" to a campus dining
services meal. Among the students who reported
generally positive and nonjudgmental experiences
friends and peers, many mentioned that their non–
food-insecure peers shared information about
resources both on- and off-campus, such as events
with free foods, locations of food pantries, or get-
ting meals covered in social situations. While social
networks provide material and emotional support
for students experiencing food insecurity, over half
of the participants mentioned that food insecurity
adversely affected their social life. As one partici-
pant said, "When other people want to go out, they
want to do these things and I just don't have the
time, the money or the energy to do a lot of those
things."

Participants reported myriad negative impacts
of food insecurity on their college experience: a
diminished ability to focus, constant fatigue, need-
ing longer to process information, and being easily
distracted. These negative impacts represent the
sacrifices food-insecure students make in different
areas of their lives. As one participant stated, "It's
like I'm having to make some pretty serious sacri-
fices … either I make sacrifices for my physical
body or my social life." These sacrifices and nega-
tive impacts—emotional experiences with a com-
mon theme of personal responsibility —felt
unavoidable for many students. For most partic-
ipants, their feelings seemed to be driven by the
assumption that they are supposed to be able to
"make it" on their own, and to reflect values
around personal responsibility. Under neoliberal-
ism, where individual responsibility has supplanted
collective care, guilt and shame are predictable
responses to the "failure" of becoming food
insecure (Swales et al., 2020). Their thoughts about
accessing food assistance resources reflect this
sense of personal responsibility; as one participant
stated, "I don't really want to ask for [my parents']
help because I'm an adult and I feel like I can
handle this on my own."

In many of these interviews, students ex-

pressed feelings of individual and institutional
responsibility for food security, while ascribing
moral value to taking personal responsibility. Most
participants communicated the sense that they
should be able to take care of themselves and that
asking for or expecting help was a moral failing.
This even extended to asking for help from family:

> Oh God, I could easily ask for help from my
> parents because they're really good about that.
> Like they want to make sure I'm happy up here
> and not like hating myself. … [They] don't
> want to know [their] kid's starving themselves.
> But I don't know. Also … rather than not eat
> for a while, I'd rather go into a little bit of
> credit card debt, shop somewhere else.

Students expressed the notion that making
sure they have enough food to eat is part of being
an adult. One student said "I don't really want to
ask for their [my parents'] help because I'm an
adult and I feel like I can handle this on my own."
Another student said, "If I'm that hungry then I
must be doing something wrong." Another offered
the following reasoning:

> Well, it's not really the university's job to sup-
> port students, even though I appreciate all the
> stuff they do for me. The university … is like a
> self-sustaining entity that is not obligated to
> provide for their clients. I am so very grateful
> [for] the direction universities have taken to
> reach out with all these awesome programs. …
> But expecting your university to provide for
> you isn't a good mindset.

The neoliberal worldview did not fully dimin-
ish student interest in structural causes of and solu-
tions for food insecurity, however. Most students
saw at least a minor role for WWU in improving
food security, for example by offering more finan-
cial aid and work-study positions. Other partici-
pants focused on campus dining services and the
food service provider, suggesting that the university
offer cheaper and more flexible options that meet
student dietary and financial needs. Several felt that
the university could do more to support students
by starting conversations around food insecurity to

lessen stigma, and they saw a need for increased advertisement of available resources.

Addressing Food Insecurity on Campus During COVID-19: Results from a Critical Reflection on our Efforts

Although many WWU students faced food insecurity before COVID-19 struck, the pandemic created increasingly dire circumstances in 2020 as food banks shut down, community food support temporarily closed, and common student jobs in the service and transportation sectors disappeared. Like many other colleges and universities, Western Washington University shifted to an online learning environment in March 2020 and mostly retained that format until fall 2021. WWU is a predominantly white institution (PWI) with limited faculty and staff representation and support for students of color. COVID-19 pandemic impacts amplified existing intersectional inequities on campus. In a summer 2020 survey, Black students reported that the pandemic exacerbated "the additional work of navigating a Predominantly White Institution (PWI), the daily work of responding to the historically white supremacist culture and systemic and institutionalized racism of Bellingham and Whatcom County, the individual and group work to deal with current racial trauma such as the aftermath of the killing of George Floyd, the individual and group work to recover from generational racial trauma, and the intellectual and emotional labor of trying to reform the university" (Social Justice & Equity Committee, n.d., "Executive Summary of the Primary Research Projects," para. 2). BIPOC students' outrage about racism on and off-campus has led to a proliferation of committees, and little action (Social Justice & Equity Committee, n.d.).

Several authors of this paper have led efforts to address food insecurity on campus during COVID-19. While some institutional efforts to provide support for food-insecure students were put in place before the pandemic, the last two years instigated a proliferation of new support efforts that make modest inroads in addressing structural, *intersectional* inequities and to engage students in decision-making about support systems on campus. In the next section, we share critical reflections on our efforts to address student food insecurity through programs that address food security (access), food justice, and food sovereignty.

Addressing Food Security (Access)
The pandemic brought a new sense of urgency to the food security crisis on our campus, prompting the university to institute programs that provide immediate financial or food access to hungry students in the form of emergency funding, Swipe Out Hunger (described below), and several food pantries. Many of the students interviewed in 2018 reached a crisis point in food access when they confronted unanticipated expenses—when a particularly cold February led to an astronomical power bill, when a family member developed a terminal illness, when their car broke down. These types of unanticipated challenges became more commonplace during the pandemic. To better match student needs with available services, the University Financial Aid office now lists food, shelter, and campus resources and access to emergency funding (WWU Financial Aid Center, 2022), and the office has also given out several rounds of COVID-19 funding through the Coronavirus Aid, Relief, and Economic Securities (CARES) Act of 2020 and the American Rescue Plan Act of 2021. As of November 2022, over US$25 million was disbursed to students at WWU in the waves of allotments and applications providing a safety net for students during the first two years of the pandemic (C. Capron, personal communication, February 20, 2022). This safety net is not set to continue after spring 2022, despite ongoing need.

Another student support program began in 2019, in collaboration with the campus food service provider, with WWU joining over 400 Swipe Out Hunger partners (Swipe Out Hunger, 2022). This program allows students to donate unused meals from their purchased meal plans for students who need food assistance. Several participants in the 2018 study reported asking friends and strangers to "swipe them in" to a meal at campus dining facilities; the Swipe Out Hunger Program lessens the stigma from this practice, but it does rely on some students having extra meals, which means that they spent substantially more on meals than was required for their own needs. Participa-

tion is routed through the financial aid office and may not be approved if it will negatively impact a student's financial aid package. In the first three years of the program, there have been over 450 meal requests—with some students requesting meals for multiple quarters (Swipe Out Hunger WWU, 2022).

Even prior to the pandemic, several departments around campus began creating informal food pantries for students. In 2019, the WWU student government, Associated Students (AS), advocated for a larger and more routinely stocked food pantry to be housed in the student union. The WWU Hub of Living Essentials (WHOLE) is a drop-in style pantry that operates during the same hours as the union. There is no sign-in process, and students can take any nonperishable food and personal care items they need. An AS staff member operates WHOLE, which largely functions on donations from the campus community and financial support through an annual online giving campaign. Because the food pantry is unlocked and open to all, the AS does not track how many students use this resource; this also reduces the stigma that many students in the 2018 study identified. On December 13, 2021, University President Randhawa sent a university-wide email stating that there would be a US$5,000 donation to the WHOLE in place of having a holiday party as had been tradition (Randhawa, S., personal communication, December 13, 2021). Raising student fees has also been suggested as a long-term funding strategy; in a 2019–2020 student exit survey, the majority of respondents indicated willingness to pay an additional US$5–15 in student fees to support a campus food pantry (Krieg et. al, 2015). While the President's donation and student willingness to pay more to support their fellow students may indicate compassion and generosity, they also reinforce the neoliberal notion that food insecurity is a problem to be solved individually or entrepreneurially, rather than institutionally. Students are taking the lead, however, in advocating for a system that is fully funded by the state of Washington; the 2022 Associated Students Legislative Agenda is pushing for funding, assessment, and legislative action to support basic need and college affordability actions, with equity central to its advocacy

(Huffman & Handa, 2022). The AS demands a role for the state in supporting basic human needs—a shift away from neoliberal policies.

Additional food pantries were created in response to increased need during the pandemic. When the university moved teaching and learning online in early 2020, the WWU Outback Farm manager and student staff connected with local grocery surplus and set up informal, "guerilla" food distribution events to any students who needed provisions. The Outback team and student volunteers drove, loaded, carried, organized, and promoted these informal events on social media. Carloads of food disappeared within hours. These informal events were quickly brought under the auspices of the university, with a more formalized approach that was attentive to food and COVID-19 safety concerns.

A pilot "food pantry pop-up" event was coordinated with a campus-wide group of concerned WWU staff members referred to as the Student Needs Working Group. This walk-through event allowed students to show their campus ID and pick up pre-prepared bags of food. The contributions of the food service contractor were essential for leveraging their purchasing power, bagging items, storing supplies, and assisting with setup (Foster, 2020). Outback student staff worked to welcome recipients and to organize, load, carry, and hand out food bags. With the pilot considered a success, grant monies and other funding were secured to provide Friday food pantry pop-ups that served an average of 100 students each week. Vegan, vegetarian, gluten-free, and omnivore options were available along with spices, recipes, and fresh produce from Outback Farm and local organic farms. These events were advertised in social media, by faculty members to students in their classes, in the campus online newspaper, and of course by word of mouth. Through these collaborations, the pop-up food pantry provided weekly support for students March 2020–June 2021.

These food security (access) programs—emergency funding, permanent and pop-up food pantries—provided vital material support for students during particularly precarious times, but they fell short in addressing student food needs and ended up distancing some students who might most need

these resources. For example, during the pandemic students using the food pantries on campus were not required to show or swipe their student ID, while the pop-up pantries did eventually require this to track grant monies used to purchase food. On the one hand, tracking student use of food pantries might allow for more targeted provision to meet student needs and may help the institution garner additional financial support (Ullevig et al., 2021); on the other hand, however, asking students to swipe their ID cards also had a demoralizing and stigmatizing effect on some recipients, and can sometimes count towards their financial aid allocation. One of the authors reflects on their experience as a student:

> I had recently left my former on-campus job where I had successfully created a clothing closet and food pantry. Unfortunately, once I left my position the University took over that space and began policing who had access, tracking usage, and labeling students who used the pantry as "at risk"… the University rarely sees food insecurity as "its problem" and pushes the responsibility of nourishing students onto community programs, local food banks, and, ultimately, on the students themselves. This not only puts strain on community programs but leads to students taking on extra work in order to keep themselves fed, and in some cases drop out of school altogether.

Programs like the food pantries that previously were created by students and staff to provide these crucial resources have sometimes been shut down or taken over by administrators.

While these efforts to address food access have provided vital basic needs to students during the COVID-19 pandemic, they are also stop-gap measures with short-term funding sources that do not address the root political-economic conditions that create high rates of student food insecurity. Rather than creating communities of support, these programs provide food aid to students who must opt in as individuals; from our interviews we determine that some students feel undeserving of this sort of aid, even if they are in great need. These food access programs also share a top-down

approach to decision-making and resource allocation; students are not getting opportunities to help shape these efforts. Because underrepresented students are not involved in creating and implementing these programs, these efforts do not always meet their needs, and in some cases students aren't even aware of these resources. For example, at a recent talking circle aimed at understanding underrepresented students' needs during the pandemic, a student noted that a Black at WWU group chat with peers "has been 100 times more helpful than anything that school has come up with, because it's just like a group of students offering support, and then telling each other about resources" (Social Justice & Equity Committee, n.d., "Team Lead: Brandon Joseph. Insights," para. 18), and shared, as an example, discovering the CARES Act funding through this chat rather than official notices. The Swipe Out Hunger program works only within the current system of a corporate dining contract. A student-led "Shred the Contract" club and campaign advocate for a dining system located outside the corporate contract system in order for students, especially BIPOC, to more easily access affordable, ethical, and culturally appropriate meals (Herlinger, 2020).

Addressing Food Justice

The COVID-19 pandemic also spurred programs that reflect a *food justice* approach by providing targeted support for former foster youth and unhoused youth. These efforts aim to address both inequities *by virtue of being students* and *intersectional* inequities on campus while still working within the dominant food system and higher education paradigms. These efforts incorporate some student voice and community building into their programs, however. In the 2019–2020 academic year, WWU received two grants to provide support to two student communities particularly vulnerable to food and housing insecurity, former foster youth and homeless youth.

WWU Success Scholars offers a community for new and transfer students who are former foster youth or unaccompanied homeless youth by hosting social and engagement workshops, providing an academic success coach, and providing information about campus food security and ongo-

ing basic needs support in program newsletters. WWU Success Scholars includes a student group that plans events like resource fairs, socials, and awareness week campaigns. Another state grant provides funding for WWU to be a pilot site for the "Supporting Students Experiencing Homelessness" program, providing short-term emergency housing, showers, storage, technology assistance, and food assistance to students who are homeless or at risk of becoming homeless (Washington Student Achievement Council, 2022). In addition, a case management group meets weekly to provide systematic support for students referred for, and properly connected to, the services they need. From our 2018 study, we know that most food-insecure students lack a financial safety net. While both of these programs are funded by time-limited grants, they have the potential to help create safety nets that assist students from the foster care system or underrepresented students get the food and other resources they need to thrive. Unlike the food access efforts described in the previous section, these efforts begin to address *intersectional* inequities and provide alternative communities of support, to address inequities facing students *by virtue of being students*, without directly challenging the neoliberal conditions that create food insecurity. These programs struggle, however, to create sustained support, as they all operate on short-term funding.

Addressing Food Sovereignty

The food security (access) and food justice approaches that have been described reflect a dominant paradigm of "insecurity," "lack," and labeling students "at risk." The dominant approach is particularly concerning when working with students facing white supremacy, classism, and other forms of discrimination. Food sovereignty approaches flip these narratives and center the entitlement of individuals and communities to exercising agency over food systems (Holt-Giménez, 2010). By focusing on giving underrepresented students voice and power to make decisions about the campus food environment, programs with a food sovereignty approach provide a more radical alternative to the neoliberal university environment. On our campus, food sovereignty efforts are underway in

two spaces: the Center for Education, Equity and Diversity and Outback Farm.

The Center for Education Equity and Diversity (CEED) is a resource center located in the WWU Woodring College of Education for students, staff, faculty, and community members who are interested in topics of educational equity, critical multicultural education, and Tribal sovereignty with an emphasis on social justice and critical consciousness cultivation. CEED hosts a welcoming and critical community/social space, provides justice-oriented professional development, operates a multicultural resource library, and nurtures critical consciousness and organizational change. Food sovereignty and justice have always been central to the work of CEED, currently the home of the WWU Native American Student Union (NASU); most of the food-oriented work the center does involves events hosted in collaboration with NASU and Indigenous farmers. The director and the coordinator of CEED are both Indigenous people with deep connections to NASU. The coordinator (one of the authors of this paper) is a former NASU student who helped establish CEED's current programs and events that are centered around food insecurity, and more specifically around providing NASU students, and other students of color, with access to fresh, organic, sustainable, ethically harvested traditional foods, as well as the opportunity to meet Indigenous activists and farmers and engage in land-based education.

As with many of the participants in the 2018 study, this community—in this case, one embodied in a physical space—is a crucial support system. One of the authors describes the impact of CEED center on their experiences as a student at WWU:

> When I first found CEED as a student, I was deeply feeling the effects of just existing within the institution. Like many students at WWU and beyond I was struggling to balance working an on-campus job, an off-campus job, school, and homework all while trying (and failing) to budget and maintain some semblance of a healthy schedule. My grades were slipping and I was feeling burned out. CEED welcomed me and provided crucial supports in the form of academic advising, mental health

support, community connection, and most crucial of all-access to food. Any time someone walks into the CEED space there is always some form of food—from donated Cup O' Noodles to left-overs from catered CEED events.

The central tenets of CEED are the gift economy and food sovereignty. While we have outlined critical steps the university has taken to provide some resources, it is often within a transactional framework, with the expectation of things in return (e.g. tracking data, grant funding, publicity). CEED, however, provides resources to support and show love to the community.

The center started collecting food donations from faculty and staff, saving event leftovers for students, and organizing trips to Indigenous farms to ethically gather and harvest fresh produce. Director Dr. Kristen French, in partnership with her daughter Elizabeth Bragg of Long Hearing Farm, began donating fresh organic vegetables to CEED and NASU. Early in the pandemic, these consistent donations of fresh produce led to the formation of the program Gifts of Gratitude (GoG), which combines donations from faculty, staff, and the Office of Tribal Relations with produce from Long Hearing Farm to make grocery kits for students, for either pick-up or delivery services. Each kit contains produce, pantry essentials, snacks for busy students, self-care tools, and a pamphlet based on a quarterly theme. For example, one of the GoG kits was made in collaboration with Indigenous chef and activist Mariah Gladstone. It consisted of squash and wild greens from Long Hearing Farm, ground bison, traditionally grown and harvested wild rice from Red Lake Nation Foods, and traditionally harvested maple syrup from the Passamaquoddy Nation, with a recipe crafted for these ingredients by Mariah. There was a virtual cook-along event in which students who got a specific GoG kit received live instruction on how to prepare the dish, as well as a talk and Q&A session with Mariah. During the pandemic, Gifts of Gratitude was a way to protect student safety while still providing access to CEED resources. This program serves between 15 and 30 students per event and is funded by faculty, staff,

and other community members. It builds on informal farmers market events with produce from Long Hearing Farm that were held prior to the pandemic.

Due to WWU and state laws regarding use of state resources to gift food and other items, all staff and faculty involved have to participate in a volunteer role. There is no secure funding or public university support for this program, despite demonstrated need. In spite of this, CEED hopes to secure the approval and long-term funding to expand Gifts of Gratitude into a formal food pantry that complements the existing network of pantries on campus and expands on the work the center is already doing, without succumbing to a transactional framework by remaining open to all students and providing particular support to BIPOC students. CEED is currently working to partner with local BIPOC farmers and fishermen to supply students with ethically harvested ingredients. The center also hopes to begin cultivating and harvesting traditional foods with NASU in the campus WWU Outback Farm.

Outback Farm serves as an experiential learning site and recreation area for WWU students as the campus organic gardens. It is the oldest program of the interdisciplinary Fairhaven College, started 50 years ago as a unique setting for hands-on development of student skills to develop self-resilience and professional opportunities. The farm features permaculture practices and is home to community gardens, chickens, crop production rows, beehives, mushroom cultivation, and a food forest. The farm provides ways for students to be involved in the food system from the ground up: they can grow their own food, determine what they want to eat, decide what is culturally appropriate for them, and get support. Students take classes, grow food, experiment, learn, reflect, advocate, create art installations, restore wetlands, and break bread together. The farm employs a team of students who collaboratively make decisions, implement ideas about growing food, and distribute produce to food-insecure students. Three year-round leadership coordinator positions (permaculture, operations, and engagement) work alongside four to five Federal Work-Study students and were joined in 2021 by an AmeriCorps

member dedicated to diversity, equity, inclusion, and justice.

The pandemic pushed Outback Farm to further develop its focus on food sovereignty, in production and programming. Instead of following the common model of market gardening, which is transactional by nature, student farmers committed to growing food for other students to give away freely. The underlying value guiding the farm is that everyone has a right to food and that everyone has a right to know about where their food comes from and to participate in that system. All vegetables, herbs, fruit, nuts, eggs, honey, and mushrooms are distributed to WWU students facing food insecurity. The goal of Outback Farm is not only to put fresh, healthy food on students' plates but provide classes, workshops, and experiential opportunities so they not only improve their current diets and mitigate hunger, but also gain long-term skills and critical nutritional and cooking knowledge. The Outback encourages students to participate in the farm through classes, events, and work parties so that they feel connected to their food source and participate in growing food for each other as an expression of community and mutual aid. Farm produce is shared through events like the free farmer's market series that was conducted during 2021 and weekly deliveries to campus food pantries.

CEED particularly supports BIPOC students, who face disproportionately high levels of food insecurity (Table 1), thus addressing *intersectional* inequities. Both CEED and Outback Farm create space for students to exercise decision-making over their food environments—a key principle of food sovereignty. Instead of creating a sense of scarcity and shame, this new approach empowers and honors students no matter where they are on the food security spectrum. These spaces also create an environment where mutual aid and collective social support is the norm, countering the troubling individualism that was expressed in some of our interviews with food-insecure students. Both programs attempt to move beyond the transactional, charity approach of most food access and food justice projects in favor of a more relational approach. CEED has struggled to secure consistent institutional funding and support, in part because their

efforts push back against the standard model of addressing food security. In other words, CEED—and to a certain extent Outback Farm—face challenges because they provide an alternative to some of the very conditions that create and exacerbate food insecurity in the first place: declining institutional support for students and individualization of responsibility.

Discussion

In this paper, we have examined college student food security under conditions of neoliberalism across two sets of inequities. The neoliberal condition creates particular challenges and inequities for college students, *by virtue of being students*. These conditions reinforce and amplify already-existing racial and economic disparities; these *intersectional* inequities exist within student populations. Many of the findings of our 2018 study reinforce other recent studies: participants cited the high cost of tuition and housing as key causes of food insecurity (Gaines et al., 2014; Henry, 2017), and many participants said that their food insecurity was precipitated by a tipping point or exogenous event, or by having multiple financial stressors (Henry, 2017). Similarly, as in other studies, our participants often skipped meals, utilized social resources, and made strategic purchasing decisions to cope with their food insecurity (Henry, 2017; Hughes et al., 2011).

In addition to validating findings from the few previous qualitative studies of food-insecure college students, the findings from our 2018 study revealed two new insights relevant to supporting food-insecure students. First, the findings indicate the paradoxical role of social networks and community for them. From our interviews, we know that students turn to social networks and their communities for help navigating food insecurity, which several WWU programs have successfully built upon. Reliance on social networks, however, does not discount the possibility for stigma and loneliness among food-insecure students: "The paradox here is that students do not experience food insecurity in isolation, but their hesitancy to speak openly about their struggles may lead to feelings of isolation" (Stebleton et al., 2020, p. 743). Avoiding social environments because of food insecurity has negative impacts on students. Sociali-

zation is demonstrably a vital part of the college experience. Strong social networks provide important mental and physical health support (Thoits, 2011), and improve retention, especially among BIPOC and first-generation students (DeBerard et al., 2004; Dennis et al., 2005).

Second, our findings reinforce the role of neoliberal conditions in higher education in producing food insecurity among students (inequities *by virtue of being students*); even as they are being financially supported for their education, the support often falls short of meeting their basic needs. In our study, some students respond to this by doubling down on their sense of personal responsibility for failing to provide for themselves. Duggan describes this as "social service functions" being "*privatized* through *personal responsibility* [emphases in original] as the proper functions of the state are narrowed, tax and wage costs in the economy are cut, and more social costs are absorbed by civil society and the family" (2012, pp. 15–16). These processes help explain why students in our study do not tend to be critical of their educational institution or the state writ large, as they have been conditioned to view otherwise.

In our critical reflection as practitioners at WWU, we examined programs and efforts to address food security (emergency aid, permanent and pop-up food pantries), food justice (programs for former foster and unhoused youth), and food sovereignty (Outback Farm and CEED). While the food security (access) efforts undertaken on our campus provide material support for students in need, they are just scratching the surface of need. Food pantries across campus regularly run empty, and the food pop-ups have not been offered since Fall 2021, when students returned to campus. The COVID-19 pandemic brought attention and resources to this issue, but many funding sources to support food pantries and emergency aid are disappearing as the pandemic subsides. On our campus, students have had limited voice in these programs, which has led to practices (including tracking through ID swipes) that serve to alienate the very students who most need food assistance. Ultimately, these programs do not address the long-term financial drain of earning a university degree, nor the individualization of responsibility

that is characteristic of contemporary neoliberal society. The programs that fit the food justice category offer some tentative support for students experiencing *intersectional inequities*; however, they have limited funding and reach. And none of these programs aim to support and engage with groups who experience the highest rates of food insecurity on our campus: BIPOC students, queer students, and students with disabilities (Table 1).

The programs that fall into the food sovereignty category address the *intersectional inequities* of food insecurity at WWU and provide the kind of community-building approach that this study indicates is needed. Outback Farm and CEED also differ from the other programs in that they do not limit their offers of food and community to those with a demonstrated need and instead are open to all. This distinction emphasizes dignity and offers an important antidote to the individualized, transactional approaches of typical campus programs. Our experiences with CEED and Outback Farm point to the potential of community building and mutual aid as part of addressing hunger. We offer these as examples of programs and efforts that could be duplicated across university spaces as a supplement to institutionalized support efforts.

While the results from the 2018 study and our critical reflection provide important insights, the findings are limited by the small sample size and our limited positionality in critical reflection. While future research might be helpful to better understand the experiences and needs of students who are disproportionately affected by food insecurity, listening sessions and surveys conducted by our colleagues (Social Justice & Equity, 2020) nevertheless suggest that BIPOC students and other students with marginalized identities urge faculty, staff, and administrators to take action to funnel resources toward direct support of students. At least on our campus, we have some models and insights about approaches that might better support students. Now our task is to give students and programs the needed resources they need, while building opportunities for critical feedback and reflection.

Conclusion

Our findings also point to broader political-economic challenges. Efforts to address food inse-

curity are band aids unless they include a comprehensive consideration of total educational costs borne by students, including housing costs. This is especially true for institutions where most students live off-campus and housing costs are high. Similarly, universities and colleges can develop strategies to allow affordable and convenient food on campus to ensure that students do not skip meals, as many participants did. At WWU, students living on campus are generally required to purchase a meal plan; a typical meal plan providing 95 meals (and US$331 in "dining dollars") over the 11-week quarter equates to US$9.50 per meal (WWU Dining, 2020). Students who live off-campus and just want an occasional meal on campus pay more per meal: US$15.05 for dinner, though students receive a modest 10% discount if meals are purchased through a Viking Dollars program (WWU Dining Services, 2022). Food options on campus are limited by a contract granting a corporate food service provider monopoly control over campus dining options, keeping small, less expensive eateries or food trucks off campus (WWU, 2019). Students on this campus are not alone in demanding more just dining services; the nationwide network Uprooted & Rising supports food sovereignty efforts at colleges and universities (Uprooted & Rising, 2022). Expanding financial aid to reflect high housing costs, facilitating student co-housing and dining cooperatives, and structuring dining contracts to allow flexibility are some examples of how students might be better supported within existing political-economic structures.

What is also needed is a set of more radical alternatives for supporting food-insecure students, especially from underrepresented identities. The food sovereignty efforts undertaken by CEED and Outback Farm provide examples. Outback Farm and CEED's Gifts of Gratitude program show how it is possible to create student-led communities of care where food provisioning is relational, where students connect with the broader food system and gain competency in producing their own food. There are also opportunities for more a radical response to the treadmill of debt and overwork that many students face: debt resistance. For example, the Debt Collective's "Can't Pay! Won't Pay! Student Debt Strike" encourages those who are able to do so to pay $0 a month on student loans in protest of the inhumane condition of debt (Debt Collective, 2022). Student experiences are both unique and universal: these struggles are linked to broader community struggles with housing and food insecurity. In our own community, the COVID-19 pandemic instigated the creation of multiple mutual aid groups aimed at providing food, childcare, and rides for city residents. In late 2020 and early 2021, activists and unhoused community members set up an encampment in front of city hall to give visibility and create space for community support in the form of organized meals and medical care.[3] To fully address the food insecurity crisis on college and university campuses, these bottom-up food sovereignty programs must be coupled with comprehensive rethinking of the political-economic challenges that communities face in this neoliberal moment.

Acknowledgments

References

Anderson, A. (2022, May 4). Bellingham's rising rents symptom of nationwide scourge. *Cascadia Daily News.* https://www.cascadiadaily.com/news/2022/may/04/bellinghams-rising-rents-symptom-of-nationwide-disease/

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[3] On January 28, 2021, a day earlier than planned, the city deployed police officers to clear the camp (Sun, 2021).

Anderson, G. (2021, March 31). Movement against corporatized campus dining services renewed. *Inside Higher Ed.* https://www.insidehighered.com/news/2021/03/31/movement-against-corporatized-campus-dining-services-renewed

Barnes, B., & Harris, M. S. (2010). Privatization influences and strategic enrollment management decisions in public research universities, *College & University*, *85*(4), 2– 9. https://www.academia.edu/1061895/Privatization_influences_and_strategic_enrollment_management_decisions_in_public_research_universities

Bernard, H. R. (2017). *Research methods in anthropology: Qualitative and quantitative approaches* (6th ed.). Rowman & Littlefield.

Bickel, G., Nord, M., Price, C., Hamilton, W., & Cook, J. (2000). *Guide to measuring household food security, revised 2000.* U.S. Department of Agriculture, Food and Nutrition Service. https://www.fns.usda.gov/guide-measuring-household-food-security-revised-2000

Broton, K. M., & Goldrick-Rab, S. (2017). Going without: An exploration of food and housing insecurity among undergraduates. *Educational Researcher*, 47(2), 121–133. https://doi.org/10.3102/0013189X17741303

Clendenning, J., Dressler, W.H., & Richards, C. (2016). Food justice or food sovereignty? Understanding the rise of urban food movements in the USA. *Agriculture and Human Values, 33*(1)*,* 165–177. https://doi.org/10.1007/s10460-015-9625-8

Crenshaw, K. (1989). Demarginalizing the intersection of race and sex: A black feminist critique of antidiscrimination doctrine, feminist theory, and antiracist politics. *University of Chicago Legal Forum, 8*(1), 139–167. http://chicagounbound.uchicago.edu/uclf/vol1989/iss1/8

DeBerard, M. S., Spielmans, G., & Julka, D. (2004). Predictors of academic achievement and retention among college freshmen: A longitudinal study. *College Student Journal*, *38*(1), 66–80. https://go.gale.com/ps/i.do?id=GALE%7CA115034777&sid=googleScholar&v=2.1&it=r&linkaccess=abs&issn=01463934&p=AONE&sw=w

Debt Collective. (2022). *Join us for* Can't Pay! Won't Pay! Student Debt Strike 2022. https://debtcollective.org/

Declaration of Nyéléni 27 February 2007. Nyéléni Village, Sélingué Mali. (2007). https://nyeleni.org/IMG/pdf/DeclNyeleni-en.pdf

Dennis, J. M., Phinney, J. S., & Chuateco, L. I. (2005). The role of motivation, parental support, and peer support in the academic success of ethnic minority first-generation college students. *Journal of College Student Development*, *46*(3), 223–236. https://doi.org/10.1353/csd.2005.0023

Dillon, E., & Carey, K. (2009). *Charts you can trust. Drowning in debt: The emerging student loan crisis.* Education Sector. https://www.air.org/sites/default/files/publications/CYCT_Drowning_In_Debt.pdf

Dominguez-Whitehead, Y. (2017). Conceptualising food research in higher education as a matter of social justice: philosophical, methodological and ethical considerations. *Cambridge Journal of Education*, *47*(4), 551–565. https://doi.org/10.1080/0305764X.2016.1216087

Duggan, L. (2012). *The twilight of equality? Neoliberalism, cultural politics, and the attack on democracy.* Beacon Press.

Foster, J. (2020, May 29). Western provides student food access with weekly food pantry pop-up at Viking Commons. *WWU Western Today.* https://westerntoday.wwu.edu/features/western-provides-student-food-access-with-weekly-food-pantry-pop-up-at-viking-commons

Fredman, J. (2019, February 19). *Black borrowers struggle with student loan debt more than other racial groups*. National Association of Student Financial Aid Administrators. https://www.nasfaa.org/news-item/17500/Report_Black_Borrowers_Struggle_With_Student_Loan_Debt_More_Than_Other_Racial_Groups

Gaines A., Clifford R. A., Knol L., & Sickler S., (2014). Examining the role of financial factors, resources and skills in predicting food security status among college students. *International Journal of Consumer Studies*, *38*(4), 374–384. https://doi.org/10.1111/ijcs.12110

Giroux, H. (2002). Neoliberalism, corporate culture, and the promise of higher education: The university as a democratic public sphere. *Harvard Educational Review*, *72*(4), 425–464. https://doi.org/10.17763/haer.72.4.0515nr62324n71p1

Goldrick-Rab, S., Baker-Smith, C., Coca, V., Looker, E., & Williams, T. (2019). *College and university basic needs insecurity: A national #RealCollege survey report*. Hope Center for College, Community, and Justice, Temple University. https://tacc.org/sites/default/files/documents/2019-04/hope_realcollege_report.pdf

Goldrick-Rab, S., Cady, C., & Coca, V. (2018). *Campus food pantries: Insights from a national survey*. Hope Center for College, Community, and Justice, Temple University.

Goldrick-Rab, S., Richardson, J., Schneider, J., Hernandez, A., & Cady, C. (2018). *Still hungry and homeless in college*. Wisconsin HOPE Lab.
https://www.theotx.org/wp-content/uploads/2018/05/Wisconsin-HOPE-Lab-Still-Hungry-and-Homeless.pdf

Gundersen, C. (2021). Are college students more likely to be food insecure than nonstudents of similar ages? *Applied Economic Perspectives and Policy*, *43*(4), 1476–1486. https://doi.org/10.1002/aepp.13110

Hagedorn-Hatfield, R., Hood, L. B., & Hege, A. (2022). A decade of college student hunger: What we know and where we need to go. *Frontiers in Public Health*, *10*, Art. 837724. https://doi.org/10.3389/fpubh.2022.837724

Hanson, M. (2021). *Average student loan debt*. Education Data Initiative.
https://educationdata.org/average-student-loan-debt

Harvey, D. (2005). *A brief history of neoliberalism*. Oxford University Press.
https://doi.org/10.1093/oso/9780199283262.001.0001

Henry, L. (2017). Understanding food insecurity among college students: Experience, motivation, and local solutions. *Annals of Anthropological Practice*, *41*(1), 6–19. https://doi.org/10.1111/napa.12108

Herlinger, M. (2020, April 1). *WWU's Shred the Contract is working on divesting from the Prison Industrial Complex*. Whatcom Peace & Justice Center. https://www.whatcompjc.org/blog/WWUs-shred-the-contract-is-working-on-divesting-from-the-prison-industrial-complex

Holt-Giménez, E. (2010). Food security, food justice, or food sovereignty? *Food First Backgrounder*, *16*(4), 1–4. https://international.uiowa.edu/sites/international.uiowa.edu/files/file_uploads/FoodMovementsWinter2010bckgrndr.pdf

Holt-Giménez, E., & Shattuck, A. (2011) Food crises, food regimes and food movements: Rumblings of reform or tides of transformation?, *The Journal of Peasant Studies*, *38*(1), 109–144. https://doi.org/10.1080/03066150.2010.538578

Hope Center for College, Community, and Justice. (January 2020). *2019 #RealCollege survey results: Institution report for Western Washington University*.

Hope Center for College, Community, and Justice. (2021). *#RealCollege 2021: Basic needs insecurity during the ongoing pandemic*. https://doi.org/10.34944/dspace/6934

Huffman, A. C., & Handa, A. (2022). *ASWWU 2022 legislative agenda*. Associated Students of Western Washington University. https://asvuWWU.blob.core.windows.net/media/up/2022/01/2022-legislative-agenda-2.pdf

Hughes, R., Serebryanikova, I., Donaldson, K., & Leveritt, M. (2011). Student food insecurity: The skeleton in the university closet. *Nutrition & Dietetics*, *68*(1), 27–32. https://doi.org/10.1111/j.1747-0080.2010.01496.x

Kimmerer, R. W. (2013). *Braiding sweetgrass: Indigenous wisdom, scientific knowledge, and the teachings of plants*. Milkweed Editions.

Krieg, J., Hartsoch, B., Stark, C., & Office of Survey Research. (2015). *Exit survey of undergraduate students completing degrees in Summer 2014, Fall 2014, Winter 2015 and Spring 2015, descriptive statistics*. Office of Survey Research, Western Washington University. https://cedar.WWU.edu/surveyresearch_docs/677

Landry, M. J., Gundersen, C., & Eicher-Miller, H. A. (2021). Food insecurity on college and university campuses: A context and rationale for solutions. *Journal of the Academy of Nutrition and Dietetics*, *122*(3), P519–P524. https://doi.org/10.1016/j.jand.2021.10.021

Ma, J., & Pender, M. (2021). *Trends in college pricing and student aid 2021*. College Board.
https://research.collegeboard.org/media/pdf/trends-college-pricing-student-aid-2021.pdf

Marcus, J. (2021, January 8). More colleges and universities outsource services to for-profit companies. *Washington Post*. https://www.washingtonpost.com/local/education/colleges-outsourcing-services/2021/01/07/c3f2ac6a-5135-11eb-bda4-615aaefd0555_story.html

Mathewson, T. G. (2017, January 18). A tough-to-swallow reason college keeps costing more: The price of meal plans. *The Hechinger Report.* https://hechingerreport.org/tough-swallow-reason-college-keeps-costing-price-meal-plans/

Mertens, D. M. (2008). *Transformative research and evaluation.* Guilford Press.

Mintz, B. (2021). Neoliberalism and the crisis in higher education: The cost of ideology. *American Journal of Economics and Sociology*, *80*(1), 79–112. https://doi.org/10.1111/ajes.12370

Mitchell, M., Leachman, M., & Saenz, M. (2019). *State higher education funding cuts have pushed costs to students, worsened inequality.* Center on Budget and Policy Priorities. https://www.cbpp.org/research/state-budget-and-tax/state-higher-education-funding-cuts-have-pushed-costs-to-students

Morris, L. M., Smith, S., Davis, J., & Null, D. B. (2016). The prevalence of food security and insecurity among Illinois university students. *Journal of Nutrition Education and Behavior*, *48*(6), P376–P382, E1. https://doi.org/10.1016/j.jneb.2016.03.013

Newson, J. A. (2004). Disrupting the 'student as consumer' model: The new emancipatory project. *International Relations*, *18*(2), 227–239. https://doi.org/10.1177/0047117804042674

Noll, S., & Murdock, E. G. (2020). Whose justice is it anyway? Mitigating the tensions between food security and food sovereignty. *Journal of Agricultural and Environmental Ethics*, *33*(1), 1–14. https://doi.org/10.1007/s10806-019-09809-9

Patton-López, M. M., López-Cevallos, D. F., Cancel-Tirado, D. I., & Vazquez, L. (2014). Prevalence and correlates of food insecurity among students attending a midsize rural university in Oregon. *Journal of Nutrition Education and Behavior*, *46*(3), P209–P214. https://doi.org/10.1016/j.jneb.2013.10.007

Payne-Sturges, D. C., Tjaden, A., Caldeira, K. M., Vincent, K. B., & Arria, A. M. (2018). Student hunger on campus: Food insecurity among college students and implications for academic institutions. *American Journal of Health Promotion*, *32*(2), 349–354. https://doi.org/10.1177/0890117117719620

Robbins, K. (2010, May 4). Among dorms and dining halls, hidden hunger. *The Atlantic.* http://www.theatlantic.com/health/archive/2010/05/among-dorms-and-dining-halls-hidden-hunger/39766/

Saunders, D. B. (2010). Neoliberal ideology and public higher education in the United States. *Journal for Critical Education Policy Studies*, *8*(1), 41–77. http://www.jceps.com/archives/626

Schraedley, M., Jenkins, J., Irelan, M., & Umana, M. (2021). The neoliberalization of higher education: Paradoxing students' basic needs at a Hispanic-serving institution. *Frontiers in Sustainable Food Systems*, *5*, Article 689499. https://doi.org/10.3389/fsufs.2021.689499

Social Justice & Equity Committee. (2020). *Underrepresented student needs assessment project.* Western Washington University. https://sjec.WWU.edu/underrepresented-student-needs-assessment-project

Stebleton, M. J., Lee, C. K., & Diamond, K. K. (2020). Understanding the food insecurity experiences of college students: A qualitative inquiry. *The Review of Higher Education*, *43*(3), 727–752. https://doi.org/10.1353/rhe.2020.0005

Sun, D. (2021, January 28). Protestors clash with police in Bellingham; homeless encampment cleared. *KIRO 7 News.* https://www.kiro7.com/news/local/protesters-clash-with-police-bellingham-homeless-encampment-cleared/2J7SBUVC7JAV3C3QPCJF2C7SXE/

Swales, S., May, C., Nuxoll, M., & Tucker, C. (2020, July 10). Neoliberalism, guilt, shame and stigma: A Lacanian discourse analysis of food insecurity. *Journal of Community & Applied Psychology*, *30*(6), 673–687. https://doi.org/10.1002/casp.2475

Swipe Out Hunger. (2022). *Our work.* https://www.swipehunger.org/ourwork/#campus-partners

Swipe Out Hunger WWU. (2022) *Swipe requests.* Unpublished internal university document.

Thoits, P. A. (2011). Mechanisms linking social ties and support to physical and mental health. *Journal of Health and Social Behavior*, *52*(2), 145–161. https://doi.org/10.1177/0022146510395592

Trapasso, C. (2021). *College crisis: Why students are struggling to find housing before classes start.* Realtor.com. https://www.realtor.com/news/trends/college-housing-crisis/

Ullevig, S. L., Vasquez, L. L., Ratcliffe, L. G., Oswalt, S. B., Lee, N., & Lobitz, C. A. (2021). Establishing a campus garden and food pantry to address food insecurity: Lessons learned. *Journal of American College Health*, *69*(6), 684–688. https://doi.org/10.1080/07448481.2019.1705830

U.S. Government Accountability Office. (2018). *Food insecurity: Better information could help eligible college students access federal food assistance benefits* [Report to U.S. Congress GAO-19-95]. https://www.gao.gov/assets/700/696254.pdf

U.S. Department of Agriculture Economic Research Service. (2022). *Food security status of U.S. households in 2021.* https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/key-statistics-graphics.aspx

Uprooted & Rising. (2022). *What we do.* https://www.uprootedandrising.org/what-we-do

Waity, J. F., Huelskamp, A., & Russell, J. (2020). Collaborating to assess and address food insecurity on a college campus: A case study at a mid-sized, regional university. *Innovative Higher Education*, *45*(5), 405–417. https://doi.org/10.1007/s10755-020-09512-y

Washington Student Achievement Council. (2022). *Student supports.* https://wsac.wa.gov/student-supports

Wells-Edwards, A. L. (2020). Food insecurity in the community college, a phenomenological inquiry: The lived experience of students using a campus food pantry [Doctoral dissertation, Oregon State University]. Oregon State University Digital Archive. https://ir.library.oregonstate.edu/downloads/th83m541g

Western Washington University [WWU] Dining. (2020). *2020-2021 Western Washington University room & board rates.* https://housing.wwu.edu/files/documents/Rates%20for%20Web%20Page_Quarterly%20Totals_with%20BT45_6-24-20_Covid%20Format_0.pdf

WWU Dining Services. (2019). *Campus Dining Services operator model analysis.* https://www.WWU.edu/files/2019-11/WWU%20Operator%20Analysis_Final%20Report_091619_Redacted.pdf

WWU Financial Aid Center. (2022). *Food, shelter, and campus resources.* https://www.finaid.WWU.edu/client_services/pages/resources/food_and_shelter.php

WWU Office of Institutional Effectiveness. (2022a). *Common data set 2020-2021.* https://oie.WWU.edu/common-data-set/

WWU Office of Survey Research. (2018). *Nutrition and food security – 2017.* https://wp.WWU.edu/osr/2017/10/18/nutrition-and-food-security-spring-2017/

Wilson, J. (2017). *Neoliberalism.* Routledge. https://doi.org/10.4324/9781315623085

SPECIAL SECTION SPONSORED BY

Food insecurity among LGBTQIA+ college students in North Texas: Meaning, experiences, and recommendations for inclusive solutions

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Abstract

This ethnographic research explores the meaning and experiences of food insecurity among LGBTQIA+ college students to understand how identity might play a role in those experiences. We offer research-informed recommendations that student-serving programs could implement to increase accessibility and inclusivity for LGBTQIA+ stu-

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dents to reduce food insecurity. The study was conducted at a large, public, Tier 1 research university in North Texas. We used purposive sampling and recruited participants through emails and class announcements. We conducted 22 in-depth, semistructured interviews with students who identified as LGBTQIA+. LGBTQIA+ students do not initially associate their food insecurity with their LGBTQIA+ identity, and many of their experiences are similar to non-LGBTQIA+ students. However, ongoing homophobia, stigma, and discrimination against people who identify as LGBTQIA+ can add additional anxiety and challenges that influence their experiences in ways that are different from non-LGBTQIA+ students. LGBTQIA+ students are at greater risk of losing family support, are more likely to seek emotional support from peers, and have increased anxiety about responses to their identity, which can affect their willingness to seek resources. Our results indicate that food insecurity has an emotional, mental, and physical impact on students, which impacts their academic success. As universities strive to be more welcoming to LGBTQIA+ students, we recommend services that will build community, create safe spaces, and strengthen trust for students to have a positive college experience.

Keywords
Food Insecurity, Food Insecurity in College, LGBTQIA+, Qualitative, Ethnography

Introduction and Literature Review
Research on food insecurity among college students has increased significantly in recent years, drawing needed attention to this national crisis (Henry, 2017, 2020). The U.S. Department of Agriculture (USDA) defines food insecurity as having limited or uncertain access to healthy, nutritionally adequate, and safe food or the limited ability to acquire food in socially acceptable ways (USDA Economic Research Service, 2022). Other characteristics of food insecurity include reduced calorie intake, lack of variety in diet, hunger without eating, and reduced weight due to lack of calories (USDA Economic Research Service, 2022). The Hope Center for College, Community, and Justice (The Hope Center) conducts the

largest nationwide annual assessment of basic needs security among college students. In 2020, over 195,000 students from 130 two-year and 72 four-year colleges responded to the survey. The research reports that 38% of college students experienced food insecurity in the 30 days prior to the survey (The Hope Center, 2021a). Crosssectional, multi-university studies report a range of 35%–50% of students being food insecure while attending college (Broton & Goldrick-Rab, 2018; Broton et al., 2018; Bruening et al., 2017; Crutchfield & Maguire, 2019; Martinez et al., 2018; Nazmi et al., 2018; University of California [UC] Global Food Initiative, 2017).

The crisis of college student food insecurity is evident from the disproportionally higher rate of food insecurity among college students (which according to the above study may be in the range of 35%–50%) than among households with characteristics, which range from the national average of 10.5% to 27.7% for households with children headed by a single woman and 28.6% for households with incomes below 185% of the poverty threshold (Coleman-Jensen et al., 2022). Interestingly, a recent analysis of the Current Population Survey by specific age groups shows that noncollege students of a similar age tend to experience the same or even higher levels of food insecurity as college students (Gunderson, 2020). This suggests that high rates of food insecurity might be more associated with age group than college status; nevertheless, college student food-insecurity rates are very high. As related to this study, Texas residents experience household food insecurity at higher rates than the national average. Texas is ranked eighth highest in the nation, with a food-insecurity rate of 13.3% (Coleman-Jensen et al., 2022). According to a recent study, Texas college students have a food-insecurity rate of 43% (The Hope Center, 2021b).

Although food insecurity in college is not a new phenomenon, research shows that the current prevalence rates are related to the existing profile of college students. According to the U.S. Government Accountability Office (GAO), the demographic profile of undergraduate college students is shifting. They are more likely to be older, first-generation, low-income, working, more

diverse (including LGBTQIA+[1]), and have more family obligations to balance (GAO, 2018). Recent prevalence studies show that marginalized and underrepresented students experience higher rates of food insecurity, including students who are Black, disabled, housing-insecure, parents, recipients of SNAP benefits, LGBTQIA+, first-generation, and former foster youth (Freudenberg et al., 2011; Goldrick-Rab et al., 2018; GAO, 2018; Maroto et al., 2015; Silva et al., 2017; UC Global Food Initiative, 2017; Wilcox et al., 2021; Willis, 2019).

LGBTQIA+ Students

Recent research highlights the relationship between sexual orientation, gender identity, and food insecurity of college students (Collier et al., 2021; Crutchfield & Maguire, 2019; Diamond et al., 2020; UC Global Food Initiative, 2017). According to The Hope Center, 65% of students who identify as LGBTQIA+ experience some form of basic needs insecurity (food or housing) (The Hope Center, 2021a). Collier et al. (2021) found a relationship between students who self-identified as LGBTQIA+ and food insecurity. Additional research found that transgender and genderqueer students had a higher risk of food insecurity than cis-gender students (Diamond et al., 2020; Hasket et al., 2020; Keefe et al., 2020; Laska et al., 2021; Riddle et al., 2020). Although only a few studies specifically focused on LGBTQIA+ students and food insecurity, these studies align with the literature that shows a higher prevalence of food insecurity and financial stress in the LGBTQIA+ adult population than non-LGBTQIA+ adult population. The experience of the LGBTQIA+ community with food insecurity is well documented (Badgett et al., 2013; Brown et al., 2016; Collier et al., 2021; Gibb et al., 2021; Patterson et al., 2020; Testa & Jackson, 2021). However, more data are needed on the relationship between LGBTQIA+ students and food insecurity, particularly information highlighting the experiences of food insecurity

among this student population. According to The Hope Center (2021b), 68% of LGBTQIA+ students in Texas experience food insecurity, and the gap between their food needs (68%) and their use of support (33%) is 35 percentage points. Among non-LGBTQIA+ students, the gap was 28 percentage points. Furthermore, research shows that those who identify as LGBTQIA+ face many educational barriers (Goldberg, 2019; James et al., 2016; Meyer et al., 2017). Kirby and Linde (2020) show that resources supportive of health and well-being, such as nutrition and counseling resources, have been associated with academic success.

This manuscript details a qualitative, deep-dive ethnographic research project at the University of North Texas (UNT) with The UNT Pride Alliance and the office of the Dean of Students. The main goals were to investigate the experiences of food insecurity among LGBTQIA+ students, to understand how identity may play a role in those experiences, and to offer research-informed recommendations for increasing accessibility and inclusivity of programs for LGBTQIA+ students. UNT is a large, public Tier 1 research university in North Texas. It has a total enrollment of just over 44,000 (Simon et al., 2021). The student body is 60% BIPOC and 40% white (Simon et al., 2021). It is about 41% first-generation undergradate students and is a Hispanic-Serving Institution (Simon et al., 2021). About 75% of UNT students receive financial aid and scholarships (Simon et al., 2021). UNT created The Pride Alliance in 2013 and "aims to be number one when it comes to offering services [to LGBTQIA+ students]" (Zapata, 2021, para. 2). The Pride Alliance is a gender and sexuality resource center through the Division of Inclusion, Diversity, Equity, and Access. The Dean of Students, a department within the Division of Student Affairs, serves as an advocate for all students and is dedicated to helping students achieve their academic and personal goals.

For the current study, our specific research questions included:

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[1] Lesbian, gay, bisexual, trans/transsexual/transgender, queer/questioning, intersex, asexual, and members of other communities, including agender, demisexual, genderfluid, graysexual, nonbinary/genderqueer, pansexual/omnisexual, polyamorous, sapiosexual, and two-spirit. For this study, we use the acronym LGBTQIA+.

1. What are the experiences of food insecurity among LGBTQIA+ students?
2. What factors contribute to food insecurity among LGBTQIA+ students?
3. How do LGBTQIA+ students cope with food insecurity?
4. What are the barriers to using current solutions to reduce food insecurity?
5. What solutions to food insecurity would LGBTQIA+ students find most useful?

Applied Research Methods

The lead researcher for this project has researched food insecurity in college for more than seven years and led a class of graduate students in conducting this research in 2021. The course was Ethnographic and Qualitative Methods through the Department of Anthropology. Student researchers were graduate students from Anthropology, International Studies, Geography, Interior Design, Behavioral Analysis, and Information Sciences. The lead researcher identifies as a non–food-insecure, heterosexual, cisgender female, and the student co-researchers have various identities and backgrounds.

We used an applied ethnographic and qualitative approach designed to capture the students' voices, the meanings they give to food insecurity, their perspectives, and their everyday practices of being food insecure and hungry while trying to complete their degree programs. Ethnography allows multiple data collection techniques to discover what people do and why they do it through their own words; it is designed for discovery, does not assume researcher objectivity, and recognizes that researchers play a role in interpreting the world around us (Gobo & Marciniak, 2016; Hammersley & Atkinson, 2010; LeCompte & Schensul, 2012; Wolcott, 1999). An ethnographic approach highlights the complex and holistic context in which human behavior occurs while searching for regularities that implicate cultural processes and cultural patterning of social activity (Wolcott, 1999). As noted by Murchison (2010),

> in order to learn about the complex dimensions of society and culture in action, the ethnographer almost necessarily has to become

involved on a personal level to one degree or another. Some ethnographers have found that their most important insights have emerged when they have chosen, or circumstances have forced them to abandon their practiced, objective stance. The element of personal experience and social and cultural empathy can be very powerful for the ethnographer. (p. 85)

Specifically, *applied* ethnography is used to bring about change in communities or groups (LeCompte & Schensul, 2012).

The research population for this project was LGBTQIA+ UNT students who self-identified as food insecure. "UNT student" is defined as any student currently enrolled at UNT. The term includes campus residents, commuters, and online learners. The words "participants" and "students" are used interchangeably. Although the USDA has a survey tool to measure levels of food insecurity, our holistic, ethnographic approach relied on participants to self-identify and explain the meaning of food insecurity in their own words. The recruitment flyer, designed to create a purposive sample, included phrases such as "those who have experienced the crisis of hunger, who have worried about where their next meal will come from, who have worried about getting enough to eat, or who do not have enough money to eat." Researchers recruited participants through campuswide email and announcements from faculty directly to students in their classes. Potential participants contacted the lead researcher. The lead researcher verified that the student met the criteria for the study and then connected participants and researchers. This purposive sampling ensured that all the criteria for the research population were met (O'Reilly, 2009). Participants in this project received a US$20 gift card to a grocery store as an incentive to participate and show appreciation for their time. The UNT Instructional Review Board approved this research.

Data collection consisted of 22 individual semi-structured interviews. Semi-structured interviews are primarily open-ended and are useful in exploratory research because, although researchers ask the same questions to each participant, they allow for flexibility through probing questions. The interviewer or interviewee can expand or enhance

the interview as needed (Bernard, 2017; Schensul & LeCompte, 2012; Wolcott, 1999). Semi-structured interviews are typically conducted in person to build rapport and trust between the researcher and the participant (Wolcott, 1999). However, because of the COVID-19 pandemic, all interviews took place over Zoom. This was a partial limitation. Some participants turned off their cameras, and we lost the face-to-face connection; however, many participants became less nervous and more open because their cameras were turned off. Although social isolation measures in response to the COVID-19 pandemic forced many ethnographers to turn to digital fieldwork, this methodological pivoting is not inherently negative. Technology served as a valuable tool for research and social connection prior to the pandemic and will continue to be an important way to communicate and engage with others (Howlett, 2022; Podjed, 2021). Interview topics related to food insecurity focused on experiences, timing, childhood, the impact on academic success, friendships, family members, LGBTQIA+ identity, coping strategies, solutions, barriers, communication, the UNT Food Pantry, resources external to UNT, and demographics. The demographic section was primarily open-ended, with a few binary questions.

The lead researcher combined the transcriptions in MAXDQA (a qualitative and mixed-methods software). Initial themes were deductive and derived from the research questions. Then, emergent subthemes were inductively identified to provide a nuanced understanding of participants' responses (LeCompte & Schensul, 2012). Demographic data were quantified, and the researchers used descriptive statistics to analyze the sample characteristics.

Results

Demographics
Table 1 shows the demographic data of our sample. Seventy-three percent of participants were traditional college-age students between 18–22 years old. Forty-one percent of participants were lower-division students (first- and second-year students), 32% were upper-division students (juniors and seniors), and 27% were graduate students. The sample

Table 1. Demographics of the Sample (*N*=22)

Demographics	Sample Frequency	Sample %
Age		
18–22 years	16	73
23–39 years	6	27
Division in college career		
Lower division students	9	41
Upper division students	7	32
Graduate students	6	27
Racial and ethnic identity		
White	13	59
Asian and Pacific Islander	4	18
Latinx	4	18
Black	1	5
Relationship status		
Not in relationship	16	73
In relationship	6	27
Living on- or off-campus		
Off-campus	19	86
On-campus	3	14
Roommates or living alone		
Roommates	17	77
Living alone	5	23
Experienced food insecurity during childhood		
Yes	15	68
No	7	32
Employment status		
Employed	15	68
Not employed	7	32
Family support of LGBTQIA+ identity		
Supportive	4	18
Not supportive	2	9
Haven't come out	2	9
"It's complicated"	14	64
Gender identity (not mutually exclusive)		
Female	9	41
Nonbinary	8	36
Male	3	14
Transgender	2	9
Bigender	1	5
Fluid	1	5
Sexual orientation (not mutually exclusive)		
Bisexual	5	23
Lesbian	5	23
Queer	4	18
Straight	3	14
Asexual	3	14
Pansexual	2	9
TBD	1	5

consisted of 59% white, 18% Asian and Pacific Islander (API), 18% Latinx, and 5% Black participants. Regarding the representation of the larger UNT population, UNT' student body is 42% white, 6.9% Asian and Pacific Islander, 24.8% Latinx, and 13% Black. Our sample was overrepresented by white and API students and underrepresented by Latinx and Black students. Seventy-three percent of participants were not in a relationship. Eighty-six percent of participants lived off-campus, and 77% had roommates. Sixty-eight percent of participants did not have dependents, yet 32% had pets under their care. Sixty-eight percent of participants were food insecure as children. We asked participants about their family support for their LGBTQIA+ identity. Eighteen percent said their family was supportive, 9% said their family was not supportive, 9% said they had not come out yet, and 64% indicated that family support was more complicated than a yes/no answer (see further discussion below). We asked participants to self-identify their gender identity. These categories are not mutually exclusive. Forty-one percent were female, 36% nonbinary, 14% male, 9% transgender, 5% bigender, and 5% gender fluid. Finally, we asked participants to self-identify their sexual orientation. These categories are not mutually exclusive. Twenty-three percent were bisexual, 23% lesbian, 18% queer, 14% straight, 14% asexual, 9% pansexual, and 5% said their sexual orientation was "to be determined."

Meaning of Food Insecurity
As noted, researchers asked participants to explain the meaning of food insecurity in their own words. Sixty-three percent of participants reported that food insecurity amounted to more than just the state of not having regular food access, but rather the anxiety and sense of uncertainty that results from it. For example, one participant said, "For me, it's just anxiety about having food or not having enough, or where I'm going to get food" (Sean,[2] 23-year-old Japanese trans male undergraduate living on campus). Forty-one percent reported some form of ceased family support, insufficient funds through work income, or using financial aid

for school supplies over food. Lastly, 31% reported barriers to food access: a lack of awareness of available resources on campus, transportation issues, or far-off living locations. For example, one participant noted, "For me, it just means struggling to get food in general while at school. You know, not being a student on campus anymore makes it much more difficult to get to the dining halls before they close while also making class on time" (Sarah, 20-year-old white queer female undergraduate living off-campus).

Key Factors for Food Insecurity
Food insecurity intersects with many other aspects of life, and students' circumstances vary. Therefore, a factor that contributed to food insecurity for some students was the effect of food insecurity on others. Here we list several emergent themes to showcase overall experiences. These themes will be discussed in more detail with exemplative quotes to deepen the understanding of participants' experiences.

- **Financial tipping points:** Many students experienced financial strain that led to the onset of food insecurity, such as losing scholarship support, receiving fewer loans, losing support from family, unemployment, and moving off-campus.
- **Childhood food insecurity:** The majority of participants (68%) experienced food insecurity during childhood. In addition, childhood food insecurity is a risk factor for college food insecurity.
- **Mental Health:** Forty-five percent of the participants described a professionally diagnosed mental health condition, and 82% indicated some anxiety or worrying. In addition, some participants noted that mental health struggles led to their unemployment, causing food insecurity, while others described food insecurity as driving their mental health struggles. A more detailed discussion about mental and physical health is below.
- **Family Support:** Forty-one percent of the

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[2] All names are pseudonyms.

participants lost family support due to their identity as LGBTQIA+. At least three students have not come out to their families due to concerns about losing financial support.

- **Transportation:** Although owning a car (45% of the sample) provided access to resources such as supermarkets and food banks, it also meant more expenses and worry.
- **Meal Plan Accessibility:** Students with five-day meal plans described weekends as the most challenging time to find food. Food insecurity tended to be worse for students without meal plans between paychecks or semesters.
- **Employment:** Most participants were either working or looking for jobs. However, employment did not eliminate their struggles with food insecurity. Some described how the additional working time left them with less time for their academic work and buying or preparing meals. Work also often left participants with less energy, compounding these issues. In addition, for some participants, anxiety related to their gender identity affected their ability to seek work, and some reported facing discrimination due to their identity.

Coping with Food Insecurity
Students reported using various methods to cope with food insecurity while managing responsibilities related to school, work, and peer socialization. Many participants explained how childhood food insecurity prepared them for their current food insecurity. They described being resourceful at finding free food from food pantries, churches, organizations, or school events. For example, one participant said, "I've gone to AA meetings to bum off free cookies and coffee. … I've seen posters for free lunches for going to some church sermons. I've gone to the MLK community center and gotten free cookies there. Just basically cockroaching to wherever food is" (Mike, 22-year-old white pansexual male junior living off-campus). Scott said, "I would scrounge for food anywhere I could. I did a study where I got paid thirty-five dollars to drink a couple of shots at UNT, and then I paid for food with odd jobs and scrounged whatever change I could to get any food I could to survive the next day" (24-year-old white pansexual male junior living off-campus). Due to constraints on money and time, many participants resorted to fast food restaurants and ate the most affordable items on menus to manage their hunger while minimizing their spending. Other participants used distraction as a copy strategy. Skyler, a nonbinary, Caucasian, 39-year-old graduate student living off-campus, reported reading and playing video games to distract themselves from hunger. Others resorted to sleeping to ignore their hunger. Sarah said, "I eat sleep for dinner. I'm like, oh I'm hungry, but if I go to sleep now, I won't have to worry too much about it" (20-year-old white bisexual female sophomore living off-campus).

Participants were often stressed about ensuring that they had something to eat every day. They planned out what and when to eat to have enough energy to manage their day-to-day responsibilities. Students referred to knowing how to make "poor kid meals" or "struggle meals" that enable them to stretch low-cost ingredients for several meals, such as Sarah, who added, "I can go to the store and buy like three ingredients, like a potato and the smallest eggs I can, and maybe tortillas and I can just make a meal out of it. I find myself being able to make meals out of anything."

A few participants sold their personal items to obtain money for food. Adrian said, "I wish I had so many of the books and records and CDs that I've sold, like special things to me that people had given to me that are worth a lot. … So, I'm like, 'Okay, this is what I have to do'" (22-year-old white bigender graduate living off-campus).

Impacts on Mental and Physical Health
LGBTQIA+ students experienced stressors that impacted their mental and physical health, including food and financial insecurity, identity, past trauma, poor nutrition, and medical bills. Eighty-two percent of participants described mental health impacts from food insecurity, such as feelings of constant anxiety and stress, trying to manage their time for school, socializing with peers, and working enough hours to put food on the table. Brian said,

"As a college student, it's hard to focus on everything that's happening. You've got to work, and then in your social life. I guess if you try to make time for it and then make sure you take care of yourself physically and mentally" (22-year-old Black transgender undergraduate living off-campus). Similarly, Maris said, "Just being a full-time student and also working full-time leaves you with very little time to eat or to shop or to prepare food. Managing four classes and then a 40-hour workweek is very stressful" (21-year-old white queer junior living off-campus). Additionally, approximately half the participants shared their struggles with previously diagnosed mental health issues, such as bipolar disorder, posttraumatic stress disorder (PTSD), and depression. Karter explained how food insecurity worsens their mental health. "I feel like a lot of it is my mental health putting me here. I think sometimes that, along with food insecurity, can be so intertwined because it's such a cycle. I'm depressed that I can't provide [food]. I can't afford counseling. I use a lot of energy trying to cope" (25-year-old white nonbinary graduate living off-campus). One-quarter of participants with mental health issues were unemployed, and some attributed their unemployment directly to their mental health. Ken said, "I recently got diagnosed as bipolar, so I realized that I just can't do both [work and school] anymore" (23-year-old Asian trans male junior living off-campus).

Over 25% of participants reported traumatic experiences during their childhood, including interpersonal violence, suicide by a family member, homelessness, and parental substance abuse. For some, this led to ongoing mental health issues such as PTSD or depression. In turn, this has resulted in being less likely to utilize available resources. As explained by Casey, "I have PTSD symptoms from things that have happened in the past, but they're sort of bleeding over into my fear of violence as a trans person …. Physically appearing in front of people, being perceived, is sort of the barrier" (25-year-old white queer male graduate student who lives off-campus).

Food insecurity also impacts students' physical health. Many students described issues with being unable to obtain healthy food, such as lack of time or resources to shop or cook, lack of money for healthy food, or just not having access to healthy food options. As previously mentioned, there are also physical symptoms associated with food insecurity besides hunger, such as low energy and the inability to focus. Taylor said, "it's a weird cycle. If you eat cheap fast food, you're like, oh, it's only this much money, but then you don't feel good. And, it's not healthy food, so I think that is sort of included in the food insecurity is access to food that is good for you. One of my coping tactics is to eat food that's cheap but bad for me" (22-year-old white nonbinary freshman living off-campus).

Some students also described medical issues from lack of nutrition, including one who described her hair falling out. Two transgender students described how the additional costs of hormone replacement therapy impacted their ability to pay for other expenses, such as food. Jules said, "I'm on hormone replacement therapy. So sometimes I feel like when I ask someone, like my mom, or when I'm just running low on money, I feel like I'm expensive because I'm paying for hormones. So, whenever I run out, that's another $30 that I have to spend, and I feel like if I weren't the way I was, then I would have that $30 for food, rent or for whatever" (19-year-old Latinx trans male sophomore living off-campus).

Academic Impacts

Eighty-two percent of participants reported that food insecurity had a negative impact on their academic success. All participants having difficulties with academics reported having less energy, lacking concentration, feeling tired, and not being able to study in general due to insufficient nutrition. In addition, working more hours to pay bills and expenses took a toll on their time management and mental health, negatively affecting their education. Sarah noted:

> If you're hungry and you're trying to study or go to class, that's going to make it ten times more difficult. Because you aren't able to focus. You're focusing on where is my next meal coming from, when am I going to eat. You're focusing on your hunger, and you're not focusing on school. You're not focusing on studying. You're not focusing on this test

that you're taking right now. You're focusing on what is dinner going to be or how am I going to get money to eat. (20-year-old white bisexual female sophomore living off-campus)

Furthermore, many of these students worked additional hours to pay bills and expenses. This affected their ability to manage their time, which increased their stress and mental health, and which they attribute to negatively impacting their education.

Support: Financial, Social, and Emotional

LGBTQIA+ students do not see their identity as an overt reason for their food insecurity. Still, identity is an additional risk factor for losing financial support from their families, particularly for transgender students. About 41% of the participants described having less family support due to their LGBTQIA+ identity, and at least three participants did not come out to their families because they might lose support. Of that 41%, 75% were trans, bigender, or nonbinary. For example, Adriana stated, "I can't contact my family for financial help, because they don't really like me" (21-year-old mixed ethnicity Latina bisexual junior living off-campus). About one-third of the participants who described less support from their families attributed this to their family's religious prefer-

ence. CJ explained how her parents tried to get notes from her psychiatrist, tracked her phone, and ultimately cut her off due to her sexual orientation. "It was very stressful and no small part to the fact that they are very, very conservative; very, very religious" (20-year-old white lesbian junior living off-campus). CJ noted that the Pride Alliance was assisting her with a dependency override because her parents claim her on their taxes, limiting the amount of aid for which she was eligible.

Food insecurity impacted social support for most of the students, both negatively and positively. Figure 1 shows food insecurity's differential impact on students' social support from family and friends. For support from both family and friends, the positive impact of discussing food insecurity with them is greater than the negative impact. Of the participants who discussed their food insecurity with their families, 32% noted that their family bonds were strengthened by receiving help with their food insecurity, compared to 14% who noted negative impacts. Negative impacts included family members thinking the students had done something wrong to cause their food insecurity. Similarly, of the participants who discussed their food insecurity with friends, 41% found that they bonded with their friends through finding support in dealing with the issue, compared to 36% who noted negative impacts. Participants explained that

Figure 1. Food Insecurity and Social Support from Family and Friends for LGBTQIA+ Students
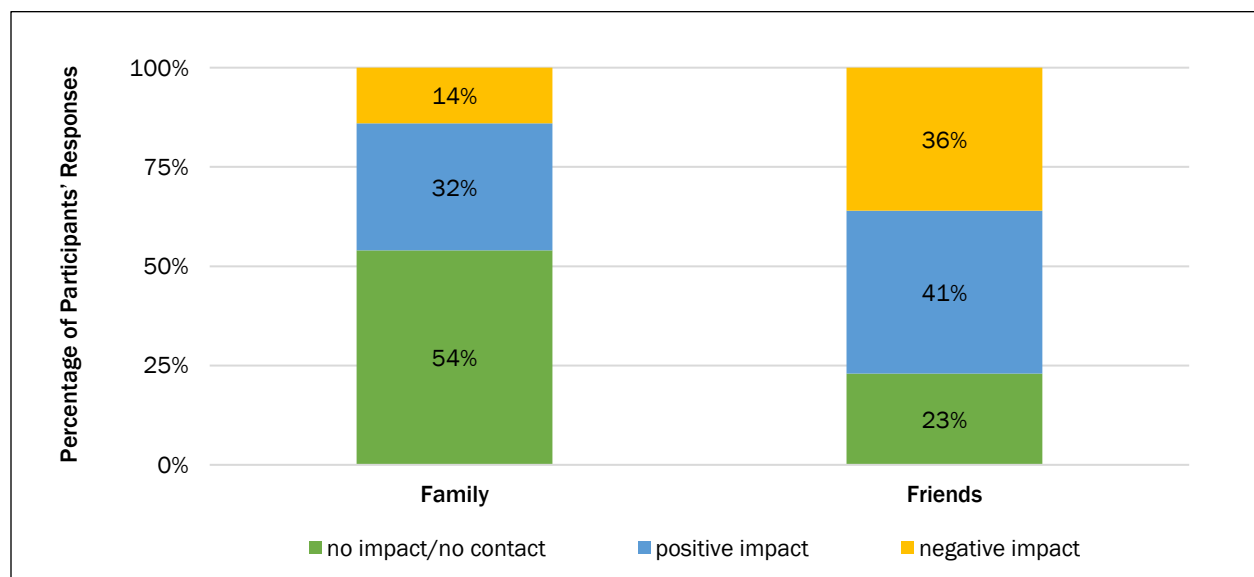
spending time with friends often involves going out to eat. With concerns about money, many students reported either feeling left out or avoiding seeing their friends altogether. Many participants also avoided telling friends and family out of embarrassment or not wanting to worry them.

One strategy that LGBTQIA+ participants employed to cope with food insecurity was looking for emotional support. Overall, most of the participants (76%) sought emotional assistance. Most of those participants reached out to their peers—roommates, friends, or significant others—and not family. Twenty-nine percent sought professional help from a counselor or therapist. Pets were also a source of emotional support (19%). Despite most participants reaching out, 24% avoided seeking external emotional support from friends, family, or counselors. For example, one participant said, "I really don't turn to anyone. I don't have a support system. I just kind of keep it to myself" (Kristin, 25-year-old white bisexual female senior living off-campus). In addition, several participants avoided reaching out due to concerns about discrimination against their gender identity.

Campus Resources, Barriers, and Solutions

The UNT Food Pantry
Roughly 67% of participants have used the UNT Food Pantry. The usage ranged from once or twice only, a few times throughout the year, to weekly visits. None of the participants reported having an unsatisfactory experience with the campus food pantry. Among those who have used the food pantry, 67% reported having a completely satisfactory experience using the food pantry as an LGBTQIA+ student. They described the food pantry as a quick and easy process with a wide variety of food, supportive staff, and accessible and flexible hours. Many showed appreciation for the easy-to-make nonperishable items, long-lasting freezer bags, and inclusion of necessities like toothpaste, soap, shampoo, and menstrual products. Concerning their LGBTQIA+ identities, their overall experience at the food pantry felt welcoming and like a safe space. One participant noted, "UNT has been extremely accommodating for my identity" (Taylor, a 21-year-old API nonbinary jun-

ior living off-campus). We found no negative influence of the participants' identities on their experiences using the UNT Food Pantry.

Barriers to using the UNT Food Pantry
Of the participants, 33% did not take advantage of the campus food pantry, even though they were aware of the resource. None of the participants felt that their non-use of the food pantry was related to their LGBTQIA+ identity. Instead, their non-use was due to many intersecting barriers such as mental health struggles, lack of transportation, time constraints, experience with unhelpful resources, concerns for anonymity, and lack of information.

Increasing access to the UNT Food Pantry
Participants made suggestions for increasing access to the UNT Food Pantry. Even though pantry users did not report any negative pantry experiences related to their LGBTQIA+ identity, a common concern for LGBTQIA+ students, in general, is the lack of anonymity around their private information, particularly for trans and nonbinary participants. When gathering data from LGBTQIA+ students, privacy is crucial due to their vulnerability as a marginalized group and the trauma surrounding unchanged legal documentation such as name and gender. Participants (pantry users and non-users) suggested that implementing preferred name forms, the option for nondisclosure, and emphasizing privacy in information distribution could create a safer and more comfortable place for LGBTQIA+ students at the campus food pantry.

Participants who had never used the campus food pantry shared stories of negative encounters with other campus resources, which led to an overall lack of trust. They expressed a desire for stronger relationships with staff members who provide support services on campus to feel more comfortable. For example, Maria noted, "If I'm going to be seeing these people weekly, it's okay if they want to build a relationship with me and get to understand me as a student" (19-year-old Latinx bisexual female sophomore living off-campus).

Other UNT support services
We asked participants about other UNT support services they would like to see offered to relieve

food insecurity, and most of their suggestions would serve all food-insecure students. Students living off-campus suggested increased public transportation and public microwaves for warming up food from home. On-campus residents suggested an on-campus convenience store that sells inexpensive, healthy food. Other suggestions included a multitude of advertising techniques to raise awareness, including increasing signs around campus, universitywide emailing of available resources, attaching resources to students' MyUNT To-Do List on student accounts, syllabus statements, and workshops and food items in dorms.

Other suggestions included non–food-related ideas. For example, participants requested increased access to mental health services through counseling or mentorship. Students recognized that food insecurity is not solely about hunger and that it creates various other needs related to mental health issues and stress. Participants expressed the need for free mental health counseling to cope with these issues. For example, Michael said, "Giving us more resources to access mental health professionals could go a long way in helping with food insecurity. If we know how to deal with stress and anxiety, you know, if we have more coping mechanisms, I feel like this would go a long way to improving our overall health" (39-year-old white asexual nonbinary graduate student living off-campus).

Only 54% of the participants knew about the UNT Pride Alliance, a campus resource specifically for LGBTQIA+ students. Participants suggested increasing the visibility of the Pride Alliance, particularly by communicating that the resources are for all ages and class years. Participants also suggested a support group or group therapy to help LGBTQIA+ students with various questions or needs, even beyond food insecurity. By acting as a resource for students and providing information, Pride Alliance can introduce LGBTQIA+ students to additional resources on campus.

Non-UNT resources and stigma
Unlike going to the UNT Food Pantry, LGBTQIA+ students experienced discomfort and stigma using resources outside the university. The themes surrounding the stigma of food insecurity

were struggling with pride over need (32%), feelings of guilt and selfishness (27%), and the desire not to be a burden (23%). Participants also noted that these resources often require too much information from participants for them to utilize that resource. Forty-one percent of respondents were concerned about discrimination due to their identities when using outside food pantries. Of the 41% who were concerned about discrimination, 78% were trans or nonbinary. For example, Ava said, "there are times when I don't want to go get the help because I'm worried that they might ask me, you know, what do I identify as or that they're just going to give me like some sort of look of pity, and sometimes I don't want to deal with that" (25-year-old white bisexual trans female senior living off-campus). Cameron stated:

> Some of them, you have to show proof of income; some of them, you don't. I mean, the UNT Food Pantry, you just say, "I need food," and they give you the food, but others also have programs that you have to sign up for, and you know, maybe volunteer a few hours at the pantry to get food. But there's no consistency between the programs, so I think that's why I just like to rely on the UNT Food Pantry because it's streamlined. It's easy to use, and I don't feel like I owe anybody anything by using the food pantry because I don't think you should feel like you owe anybody anything. (39-year-old white nonbinary graduate living off-campus)

LGBTQIA+ students want resources outside of UNT that are LGBTQIA+-friendly to reduce the chances of being discriminated against for their identity. Therefore, they are more likely to use a resource that promotes itself as LGBTQIA + friendly. As one participant explained, "… they were a queer-affirming church, so that was the main reason I even felt comfortable going" (Brian, 39-year-old white nonbinary graduate living off-campus). The participants want to feel safe using outside resources they may have never used previously. Brian continued, "I wouldn't feel comfortable going in those spaces. I just wouldn't feel safe, especially if you have to fill out paperwork, and

you know, you put "He/They" on a form, and they're like, 'What?' And so, it's just better not to mess with it."

Discussion

The LGBTQIA+ students in this study did not initially associate their food insecurity with their LGBTQIA+ identity. When asked about their experiences, they discussed tipping points of moving off-campus and reduced financial aid funding; anxiety around not knowing where their next meal will come from; financial stress despite working; stress of balancing living, work, school, and peers; childhood food insecurity; strategies for coping with food insecurity; and increased mental and physical health issues. These issues are similar to those of non-LGBTQIA+ college students experiencing food insecurity (Henry, 2017, 2020). However, LGBTQIA+ students have additional anxiety and challenges that influence their food-insecurity experiences in ways that are different from non-LGBTQIA+ students. These findings provide insights into several ways that both on-campus and off-campus food-security programs could be more inclusive of LGBTQIA+ students. Primarily, universities need gender and sexuality resource centers, like the UNT Pride Alliance, that invest in the success of LGBTQIA+ students by providing resources for the specific and unique needs of LGBTQIA+ students (Collier et al., 2021). These centers can play a pivotal role in providing the infrastructure necessary for the forthcoming recommendations.

Identifying as LGBTQIA+ can affect all elements of a student's support system: financial, social, and emotional. LGBTQIA+ students are at risk of losing family support. This is particularly true for trans and nonbinary students, several of whom in this study hid their gender identity from their families for fear of losing financial support. Yet, LGBTQIA+ students are more likely than non-LGBTQIA+ students to seek emotional support from peers—roommates, friends, and significant others (Henry, 2017, 2020). Henry (2017, 2020) found that most food-insecure college students did not share their struggles with others. Among LGBTQIA+ students, we found that 76% sought emotional assistance from peers.

LGBTQIA+ students may have a stronger peer support group than non-LGBTQIA+ students, which could benefit this student population by providing additional support and information about resources. We recommend that gender and sexuality campus resource centers formalize peer support networks for LGBTQIA+ food-insecure students. Peer support networks can help channel information on resources, provide a buddy system for accessing resources, and create supportive reassurances that services are inclusive.

LGBTQIA+ students may have increased anxiety about society's response to their identity, affecting their willingness to seek resources. For example, although LGBTQIA+ campus food pantry users did not have negative experiences at the pantry related to their identity, fear of negative experiences is a barrier for non-users unfamiliar with the process. We recommend that centers of university resources (food pantries and other resources) receive training on how to be more LGBTQIA+ welcoming and communicate their inclusiveness broadly. This could ease the fear and stigma experienced by LGBTQIA+ students, strengthen the relationships between LGBTQIA+ students and the resources on campus, and make safe places for students to seek resources. Gender and sexuality campus resource centers could reach out to identified LGBTQIA+ students to provide this information. Specifically, adding information to the food pantry website about the visit procedure, nondisclosure of information, and reassurance that it will be a private and positive experience may ease non-users' anxiety about visiting a new service on campus. For off-campus resources, stigma and the fear of discrimination are also barriers to using these resources. Whereas non-LGBTQIA+ students frequently experience shame about utilizing non-campus resources (Henry, 2017, 2020), LGBTQIA+ students perceive an additional layer of discrimination because of their identity. The recommended peer support network could provide additional emotional support to ease this anxiety. We recommend that gender and sexuality campus resource centers build community partnerships with LGBTQIA+-friendly off-campus resources, create a list of these LGBTQIA+-friendly resources, and distribute this

list as widely as possible to all students—because peer support is important to all students. Students need additional reassurance that resources outside the university are intended for their needs as students and not solely the local community outside of the university.

Despite their challenges, participants' stories highlighted their resiliency in dealing with food insecurity by pushing ahead. As a result, they are motivated to stay in school to finish their degrees. As explained by Morgan, "We struggle with our gender identities and to validate our own humanity. But then [we need] to reach out, 'I need food, also I need help,' right? So, [we are also] trying to show that we're strong enough to stand on our own and fight for ourselves" (39-year-old white nonbinary male graduate student living off-campus). Additionally, we recommend providing support to facilitate access to mental health services on campus with the same assurance for a positive interaction for LGBTQIA+ students.

Recommendations for Future Research

Research on food insecurity among college students has increased significantly in the past seven years, and prevalence studies have identified LGBTQIA+ students as particularly vulnerable. Further research is needed on the specifics of this vulnerability, including (1) factors contributing to the high rate of food-insecure LGBTQIA+ students, (2) peer support networks for LGBTQIA+ students, (3) the reduction of identity-related anxiety in accessing resources, and (4) identifying additional resources for reducing food-insecurity rates.

Conclusions

The main goals of this research were to investigate the experiences of food insecurity among LGBTQIA+ students, to understand how identity may play a role in those experiences, and to offer research-informed recommendations that student-serving programs could implement to reduce food insecurity. Overall, this study indicates that including LGBTQIA+-specific resources in food access programs may alleviate students' anxiety and barriers to those programs, which may increase students' abilities to succeed in the classroom. Communication strategies need to include the widespread dissemination of information about resources and the inclusivity of those resources for LGBTQIA+ students. Peer support networks can build community, create safe spaces, and strengthen trust for students to have a positive college experience. University gender and sexuality resource centers can increase access to food services by (1) increasing services and programs specifically designed for LGBTQIA+ students, (2) partnering with LGBTQIA+-friendly campus and community partners to build a network of resources, and (3) facilitating trusted information and access to campus and non-campus resources.

References

Badgett, M. V. L., Durson, L. E., & Schneebaum, A. (2013). *New patterns of poverty in the lesbian, gay, and bisexual community.* UCLA: The Williams Institute. https://cloudfront.escholarship.org/dist/prd/content/qt8dq9d947/qt8dq9d947.pdf

Bernard, H. R. (2017). *Research methods in anthropology: Qualitative and quantitative approaches.* Rowman & Littlefield.

Broton, K. M., & Goldrick-Rab, S. (2018). Going without: An exploration of food and housing insecurity among undergraduates. *Educational Researcher, 47*(2), 121–133. https://doi.org/10.3102/0013189x17741303

Broton, K., Weaver, K., & Mai, M. (2018). Hunger in higher education: Experiences and correlates of food insecurity among Wisconsin undergraduates from low-income families. *Social Sciences*, *7*(10), Article 179. https://doi.org/10.3390/socsci7100179

Brown, T. N. T., Romero, A. P., & Gates, G. J. (2016). *Food insecurity and SNAP participation in the LGBT community.* The Williams Institute. https://williamsinstitute.law.ucla.edu/wp-content/uploads/Food-Insecurity-and-SNAP-Participation-in-the-LGBT-Community.pdf

Bruening, M., Argo, K., Payne-Sturges, D., & Laska, M. N. (2017). The struggle is real: A systematic review of food insecurity on postsecondary education campuses. *Journal of the Academy of Nutrition and Dietetics*, *117*(11), 1767–1791. https://doi.org/10.1016/j.jand.2017.05.022

Coleman-Jensen, A., Rabbitt, M., Hashad, R., Hales, L., & Gregory, C. (2022). *Food security in the U.S.: Key statistics & graphics.* U.S. Department of Agriculture Economic Research Service. https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-u-s/key-statistics-graphics/

Collier, D. A., Fitzpatrick, D., Brehm, C., & Archer, E. (2021). Coming to college hungry. *Journal of Postsecondary Student Success*, *1*(1), 106–135. https://doi.org/10.33009/fsop_jpss124641

Crutchfield, R. M., & Maguire, J. (2019). *Study of student service access and basic needs.* The California State University, Basic Needs Initiative. https://www.calstate.edu/impact-of-the-csu/student-success/basic-needs-initiative/Documents/BasicNeedsStudy_Phase_3.pdf

Diamond, K. K., Stebleton, M. J., & delMas, R. C. (2020). Exploring the relationship between food insecurity and mental health in an undergraduate student population. *Journal of Student Affairs Research and Practice*, *57*(5), 546–560. https://doi.org/10.1080/19496591.2019.1679158

Freudenberg, N., Manzo, L., Jones, H., Kwan, A., Tsui, E., & Gagnon, M. (2011). *Food insecurity at CUNY: Results from a survey of CUNY undergraduate students.* The Campaign for a Healthy CUNY, The City University of New York. https://www.gc.cuny.edu/sites/default/files/2021-05/cunyfoodinsecurity.pdf

Gibb, J. K., Shokoohi, M., Salway, T., & Ross, L. E. (2021). Sexual orientation–based disparities in food security among adults in the United States: Results from the 2003–2016 NHANES. *The American Journal of Clinical Nutrition*, *114*(6), 2006–2016. https://doi.org/10.1093/ajcn/nqab290

Gobo, G., & Marciniak, L. (2016). What is ethnography? In D. Silverman (Ed.), *Qualitative research* (pp. 103–119). Sage.

Goldberg, A. (2019). Transgender students in higher education. The Williams Institute. https://williamsinstitute.law.ucla.edu/publications/trans-students-higher-education

Goldrick-Rab, S., Richardson, J., Schneider, J., Hernandez, A., & Cady, C. (2018). *Still hungry and homeless in college.* Wisconsin HOPE Lab. https://ighhub.org/resource/still-hungry-and-homeless-college

Government Accountability Office [GAO]. (2018). *Better information could help eligible college students access federal food assistance benefits.* https://www.gao.gov/assets/700/696254.pdf

Gundersen, C. (2020). Are college students more likely to be food insecure than nonstudents of similar ages? *Applied Economic Perspectives and Policy*, *43*(4), 1476–1486. https://doi.org/10.1002/aepp.13110

Hammersley, M., & Atkinson, P. (2010). *Ethnography: Principles in practice.* Routledge.

Haskett, M. E., Kotter-Grühn, D., & Majumder, S. (2020). Prevalence and correlates of food insecurity and homelessness among university students. *Journal of College Student Development*, *61*(1), 109–114. https://doi.org/10.1353/csd.2020.0007

Henry, L. (2017). Understanding food insecurity among college students: Experience, motivation, and local solutions. *Annals of Anthropological Practice*, *41*(1), 6–19. https://doi.org/10.1111/napa.12108

Henry, L. (2020). *Experiences of hunger and food insecurity in college.* Palgrave Macmillan. https://doi.org/10.1007/978-3-030-31818-5

Hope Center for College, Community, and Justice, The. (2021a). *The HOPE Center Survey 2021: Basic needs insecurity during the ongoing pandemic.* https://hope.temple.edu/sites/hope/files/media/document/HopeSurveyReport2021.pdf

Hope Center for College, Community, and Justice, The. (2021b). *#RealCollege 2021: Basic needs insecurity among Texas college students—A #RealCollegeTexas report.* https://hope.temple.edu/sites/hope/files/media/document/RC2020_RCTX.pdf

Howlett, M. (2022). Looking at the 'field' through a Zoom lens: Methodological reflections on conducting online research during a global pandemic. *Qualitative Research*, *22*(3), 387–402. https://doi.org/10.1177/1468794120985691

James, S. E., Herman, J. L., Rankin, S., Keisling, M., Mottet, L., & Anafi, M. (2016). *The report of the 2015 U.S. Transgender Survey.* National Center for Transgender Equality. https://transequality.org/sites/default/files/docs/usts/USTS-Full-Report-Dec17.pdf

Keefe, S., Garagiola-Bernier, A., Kiley, E., England, J., Schmitt, S. R., & Shore, M. (2020). Campus food insecurity: Bringing private institutions into conversations on basic needs. *Journal of Hunger & Environmental Nutrition*, *16*(5), 628–642. https://doi.org/10.1080/19320248.2020.1838984

Kirby, S. R., & Linde, J. A. (2020). Understanding the nutritional needs of transgender and gender-nonconforming students at a large public Midwestern University. *Transgender Health*, *5*(1), 33–41. https://doi.org/10.1089/trgh.2019.0071

Laska, M. N., Lenk, K., Lust, K., McGuire, C. M., Porta, C. M., & Stebleton, M. (2021). Sociodemographic and health disparities among students screening positive for food insecurity: Findings from a Large College Health Surveillance System. *Preventive Medicine Reports*, *21*, Article 101297. https://doi.org/10.1016/j.pmedr.2020.101297

LeCompte, M. D., & Schensul, J. J. (2012). *Designing and conducting ethnographic research: An introduction*. Ethnographer's Toolkit, Volume 1, 2nd edition. AltaMira.

Maroto, M. E., Snelling, A., & Linck, H. (2015). Food insecurity among community college students: Prevalence and association with grade point average. *Community College Journal of Research and Practice*, *39*(6), 515–526. https://doi.org/10.1080/10668926.2013.850758

Martinez, S. M., Webb, K., Frongillo, E. A., & Ritchie, L. D. (2018). Food insecurity in California's public university system: What are the risk factors? *Journal of Hunger & Environmental Nutrition*, *13*(1), 1–18. https://doi.org/10.1080/19320248.2017.1374901

Meyer, I. H., Brown, T. N. T., Herman, J. L., Reisner, S. L., & Bockting, W. O. (2017). Demographic characteristics and health status of transgender adults in select US regions: Behavioral Risk Factor Surveillance System, 2014. *American Journal of Public Health*, *107*(4), 582–589. https://doi.org/10.2105/ajph.2016.303648

Murchison, J. M. (2010). *Ethnography essentials: Designing, conducting, and presenting your research*. Jossey-Bass.

Nazmi, A., Martinez, S., Byrd, A., Robinson, D., Bianco, S., Maguire, J., Crutchfield, R. M., Condron, K., & Ritchie, L. (2018). A systematic review of food insecurity among US students in higher education. *Journal of Hunger & Environmental Nutrition*, *14*(5), 725–740. https://doi.org/10.1080/19320248.2018.1484316

O'Reilly, K. (2009). *Key concepts in ethnography*. Sage UK. https://doi.org/10.4135/9781446268308

Patterson, J. G., Russomanno, J., & Jabson Tree, J. M. (2020). Sexual orientation disparities in food insecurity and food assistance use in U.S. adult women: National Health and Nutrition Examination Survey, 2005–2014. *BMC Public Health*, *20*(1). https://doi.org/10.1186/s12889-020-09261-9

Podjed, D. (2021). Renewal of ethnography in the time of the COVID-19 crisis. *Sociologija i prostor/Sociology & Space*, *59*(1), 267–284. https://doi.org/10.5673/sip.59.0.10

Riddle, E. S., Niles, M. T., & Nickerson, A. (2020). Prevalence and factors associated with food insecurity across an entire campus population. *PLOS ONE*, *15*(8), Article e0237637. https://doi.org/10.1371/journal.pone.0237637

Schensul J. J., & LeCompte, M. D. (2012). *Essential ethnographic methods: A mixed methods approach*. Ethnographer's Toolkit, Volume 3, 2nd edition. AltaMira.

Silva, M. R., Kleinert, W. L., Sheppard, A. V., Cantrell, K. A., Freeman-Coppadge, D. J., Tsoy, E., Roberts, T., & Pearrow, M. (2017). The relationship between food security, housing stability, and school performance among college students in an urban university. *Journal of College Student Retention: Research, Theory & Practice*, *19*(3), 284–299. https://doi.org/10.1177/1521025115621918

Simon, J., Barton, M., West, C., & Fuentes, C. (2021). *2020-2021 fact book: Data, analytics, & institutional research*. The University of North Texas. https://institutionalresearch.unt.edu/sites/default/files/factbook_2020-2021-final.pdf

Testa, A., & Jackson, D. B. (2021). Sexual orientation and food insecurity: Findings from the New York City Community Health Survey. *Public Health Nutrition*, *24*(17), 5657–5662. https://doi.org/10.1017/s1368980020005157

U.S. Department of Agriculture Economic Research Service. (2022). *Food security in the U.S.: Measurement*. https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-u-s/measurement/

University of California [UC] Global Food Initiative. (2017). *Global food initiative: Food and housing security at the University of California*. The University of California. http://www.ucop.edu/global-food-initiative/_files/food-housing-security.pdf

Wilcox, M., Baker, C., Burish, E., Arnold, R., Cherry, M., & Moss, T. (2021). Inequitable hunger: Scope, effects, and perceptions of college student food insecurity. *Journal of Student Affairs Research and Practice*, *59*(4), 385-400. https://doi.org/10.1080/19496591.2021.1960851

Willis, D. E. (2019). Feeding the student body: Unequal food insecurity among college students. *American Journal of Health Education*, *50*(3), 167–175. https://doi.org/10.1080/19325037.2019.1590261

Wolcott, H. F. (1999). *Ethnography: A way of seeing*. AltaMira.

Zapata, L. (2021, May 20). How UNT is trying to be a welcoming place to LGBTQ+ students. *Spectrum News 1*. https://spectrumlocalnews.com/tx/south-texas-el-paso/news/2021/05/20/how-unt-is-trying-to-be-a-welcoming-place-to-lgbtq--students--

Addressing and preventing food and housing insecurity among college students: An asset-based approach

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Abstract
Universities have implemented a range of initiatives to address food and housing insecurity, but few studies have examined how campus communities are engaging around these issues. This article explores how North Carolina State University conducted asset-mapping workshops, a community-based participatory research (CBPR) method, to mobilize the campus community and identify solutions to address the root causes of food insecurity and other forms of basic needs insecurity among students. Workshop participants identified exemplary resources focused on addressing students' immediate needs (e.g., campus food pantries, a student emergency fund). At the same time, they stated that basic needs insecurity is tied to longer-term, systemic issues like wage inequality and a lack of affordable housing. Participants also noted that historically marginalized students (e.g., LGBTQ+, low-income, first-generation college) often experience food and housing insecurity in complex ways requiring targeted solutions. Our results suggest that CBPR methods like asset mapping offer an approach that, when done well, can center the voices and experiences of diverse campus populations to identify and address the complex structural and systemic processes that shape students' experiences of food and housing insecurity.

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Keywords

Community-Based Participatory Research, Food Insecurity, Housing Insecurity, Basic Needs, Asset Mapping, College Students, Higher Education

Introduction

Food insecurity is widespread on many college and university campuses. A 2019 review of 31 studies found food insecurity rates among college students ranging from 9% to over 50% (Larin et al., 2018). Food insecurity is often linked to other forms of basic needs insecurity, including housing insecurity.[1] Research on housing insecurity among college students is more limited, but data from four surveys of over 30,000 college students revealed that half of students at two-year colleges and between 11% and 19% of students at four-year universities reported housing insecurity (Broton & Goldrick-Rab, 2018).

Students who experience food insecurity and other forms of basic needs insecurity often struggle academically and are less likely to graduate. One study found that severely food-insecure students were 15 times more likely to have failed a course and 6 times more likely to have withdrawn or dropped out (Silva et al., 2017). Students experiencing homelessness were 13 times more likely to have failed a course and 11 times more likely to have withdrawn or dropped out. Research also finds that students who experience food insecurity are more likely to take a leave from school due to financial constraints (Martinez et al., 2020) and have lower GPAs (Camelo & Elliott, 2019; Martinez et al., 2019; Patton-López et al., 2014). Students who are food insecure report poorer health outcomes (Knol et al., 2017; McArthur et al., 2018) and are more likely to report symptoms of depression (Payne-Sturges et al., 2017) than food-secure students.

Patterns of food insecurity among college students are tied to broader social and economic inequities. Non-white students, student parents, students in urban areas, students living off campus, former foster youth, high users of financial aid, low-income students, and first-generation students are more likely to experience food insecurity and other forms of basic needs insecurity (Broton & Goldrick-Rab, 2018; Chaparro et al., 2009; Gaines et al., 2014; Haskett, Kotter-Grühn et al., 2020; Haskett et al., 2021; Maroto et al., 2015; Martinez et al., 2019; Payne-Sturges et al., 2017;).

Researchers and policymakers have called on universities to better address basic needs insecurity, and many colleges and universities have tried. A recent survey found that almost all responding institutions (N=469) had at least one service dedicated to this issue (American Association of Collegiate Registrars and Admissions Officers [AACRAO] & The Hope Center for College, Community, and Justice, 2020). Existing initiatives include food pantries, emergency aid programs, and centralized student services (Patton-López et al., 2014). However, these responses are inadequate. University responses tend to be disparate and focused on providing emergency support, rather than addressing the root causes of basic needs insecurity. Further, students are often unaware of how to access the help they need (Haskett, Kotter-Grühn et al., 2020; Larin et al., 2018; Patton-López et al., 2014).

Because student food and housing insecurity are linked to a host of systemic issues (including rising costs of tuition, cuts to public funding for higher education, insufficient financial aid, and a weak part-time labor market) (Freudenberg et al., 2019), efforts to address them should also be systemic. To determine how to act and mobilize the support needed for systemic changes, it is necessary to engage diverse coalitions of students, faculty, staff, and administrators. Yet few studies have examined how to effectively engage campus stakeholders, including students, in this work. This article explores how North Carolina State University (NC State), a large public university in the southeastern United States, used the community-based participatory research (CBPR) method of asset mapping to engage students and university stakeholders in key decision-making processes around addressing food and housing insecurity.

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[1] "Basic needs" generally refers to food, shelter, and clothing needs; some definitions include sanitary, educational, and healthcare needs. Most research on this topic focuses on food and/or housing insecurity (Broton & Goldrick-Rab, 2016; Camelo & Elliott, 2019; Freudenberg et al., 2019).

Contextual Background

This article describes asset-mapping workshops conducted in April 2019 at NC State University to understand and address food and housing insecurity among students. All activities took place prior to the COVID-19 pandemic, which has likely exacerbated the experiences described here. At the time of the workshops, approximately 26,000 undergraduate students and 11,000 graduate and professional students attended NC State, which is located in Raleigh, North Carolina, a city of over 450,000 people. The Raleigh-Durham metropolitan area is one of the fastest-growing in the country (Ordoñez, 2020); although people have moved to the area in part because of its relative affordability, population growth has led to recent increases in the cost of living, as we discuss later in the paper. Notably, the North Carolina public university system is one of the most affordable in the country for in-state students (for two-year and four-year institutions), and affordable tuition is enshrined in the state constitution (Moore, 2018). Even so, in recent years, tuition has increased as public spending on higher education has decreased, falling 17% since 2008 (State Higher Education Finance, 2021).

According to a representative survey conducted in October 2017, 14% of NC State students had experienced low or very low food insecurity over the previous 30 days (using the 10-item USDA Adult Food Security Survey Module [FSSM]).[2] Nearly 10% of students had experienced homelessness over the previous 12 months (Haskett et al., 2018). The rate of food insecurity was at the low end of the wide continuum found in the literature, whereas the rate of homelessness was at the high end (Haskett, Kotter-Grühn et al., 2020). Women and Latino/a/x students were overrepresented in the food insecure group (Haskett, Kotter-Grühn et al., 2020). Students who identified as LGBTQ appeared to be at elevated risk for food insecurity and homelessness; the authors of the report concluded that there is a need

for additional research on the connections between sexual orientation, gender identity, and basic needs insecurity among college students (Haskett, Kotter-Grühn et al., 2020). There were few significant differences in food security status and homelessness by race, but the authors concluded that these effects might be underestimated due to small samples for some racial groups (Haskett, Kotter-Grühn et al., 2020).

Based on the results of the survey, a group of concerned students, faculty, and staff formed the Pack Essentials Steering Committee to ensure that students have "access to sufficient, nutritious, culturally appropriate and affordable food and safe, affordable housing accessible to the university" (Butler & NCSU Office for Institutional Equity and Diversity [OIED] Staff, 2018, para. 2). The committee was led by a faculty member with expertise in this field and an administrator in student supportive services and advised by a college dean. Members included faculty and advisors representing multiple colleges; graduate and undergraduate student representatives; directors of dining, housing, and wellness services; staff who work with library, financial aid, and student support services; and the university's student ombudsperson. As part of its efforts, the committee organized asset-mapping workshops to engage key stakeholders in discussing how to advance from *supporting* students during financial emergencies to *addressing* food and housing insecurity's root causes.

Methods

The asset-mapping workshops are based on the Participatory Inquiry into Religious Health Assets, Networks, and Agency (PIRHANA) framework (Olivier et al., 2012). The workshops had four overarching goals: (1) identifying existing assets related to addressing food and housing insecurity; (2) identifying structural factors that shape how students experience food and housing insecurity, to better identify resources to address these; (3) articulating differences in how students, faculty, staff,

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[2] The U.S. Department of Agriculture (USDA) Adult Food Security Survey Module uses 10 questions to assess food security status among adults (USDA ERS, 2012). Food insecurity is assessed over the previous 30 days. Respondents are classified as experiencing high, marginal, low, or very low food security. Respondents who reported experiencing "low" or "very low" food insecurity were classified as food insecure. See Haskett et al. (2020) for additional details about how responses were classified.

and community stakeholders perceive assets and needs; and (4) determining priorities and steps for future action to address gaps and needs. We first explain why the Pack Essentials Steering Committee chose the participatory method of asset mapping. We then provide details on the process of organizing and facilitating the workshops and collecting and analyzing data from them.

Why Asset Mapping?

Asset-mapping is a participatory method that examines communities' assets and resources in order to build on those assets and create strategies for change (Blevins et al., 2012; Emery & Flora, 2006). At its core, CBPR uses collaborative methods to engage communities in all aspects of the research process to take action and create change (Viswanathan et al., 2004). By engaging faculty, staff, and students (including students in groups that are more likely to experience food and housing insecurity) in facilitating the workshops, interpreting the results, and identifying strategies for further action, the workshops described here adopt the key tenets of CBPR.

In short, asset-mapping approaches elicit, from a broad spectrum of community members, the intrinsic strengths and resources that exist in local contexts but are often overlooked by people working outside these communities and contexts. Importantly, instead of focusing on needs or shortcomings, asset-based approaches highlight communities' existing strengths and consider why those resources are deemed important (Jakes et al., 2015). Asset mapping has successfully engaged communities in identifying and building on their strengths to address a range of complex issues (Emery & Flora, 2006; Florian et al., 2016; Jakes et al., 2015; Reppond et al., 2018). Food justice scholars argue that participatory approaches like asset mapping offer a promising equity-based approach to food insecurity (De Master & Daniels, 2019; Scorza et al., 2012). Rather than defining people and communities as problems (for example, labeling communities as "food deserts"), these approaches resist those narratives and aid in "informing more textured, nuanced understandings of community food access, disrupting stigmatizing gazes, and inviting commu-

nity engagement with creative visualizations" (De Master & Daniels, 2019, p. 242). The Pack Essentials Steering Committee recognized that asset-mapping methods could help mobilize the campus community in addressing food and housing insecurity while also centering students' voices and narratives.

Workshop Participants

All four authors were involved in the process of organizing and facilitating the workshops. The steering committee recruited a diverse group of participants by working with student organizations, faculty, and staff across the university, focusing on organizations that support first-generation students or students who face basic needs insecurity. To broaden the pool of participants beyond these organizations, the authors developed and sent a flier to various campus email lists (for example, for student organizations). We did not specifically recruit students experiencing food or housing insecurity or track whether participants were experiencing food or housing insecurity, as we felt this would undermine confidentiality and potentially make some participants uncomfortable (Peterson et al., 2022). However, we deliberately sent fliers to organizations that support students experiencing these issues and/or represent students that are likely to experience food insecurity (for example, students of color, student parents, first-generation students, and international students). The authors and facilitators worked to recruit diverse participants in terms of race, ethnicity, gender, sexuality, college major, and year in school whenever possible.

Twenty-eight faculty and staff members and 37 students participated in the workshops. Of the 65 people who attended the first round of workshops, 40 attended the follow-up strategic planning session. We collected additional details about the gender, racial, ethnic, and sexual identities of participants via a brief demographic survey. The study was approved by NC State's Institutional Review Board, and all participants signed a form consenting to participate. The workshops were audio recorded and transcribed by a transcription company. Workshop facilitators also took turns taking notes during workshop sessions they were not leading.

Workshop Structure

The workshops were held over two days in April 2019. On the first day, two separate student groups met. Both groups included both undergraduate and graduate students. On the following day, faculty and staff met without students. These initial workshops—two student workshops and one employee workshop—focused on identifying key drivers of food and housing insecurity on campus and mapping existing resources and assets. In the afternoon of the second day, we invited all participants to come back together to identify priorities and outline steps needed to achieve those goals. The authors, three white women and one Latina woman, served as primary workshop facilitators. We also trained three undergraduate students (a Black woman, an Asian woman, and a Native American man) and two staff members (a Black woman and a Latina woman) as co-facilitators. We aimed to ensure that facilitators were racially diverse and represented the major sectors of the campus community (a mix of graduate students, undergraduate students, faculty, and staff). In the workshops, facilitators asked participants to define the root causes of food and housing insecurity, identify community and university assets that could be used to address food and housing insecurity, consider how assets could be combined or used in new ways, and propose concrete strategies for action.

Graphs Over Time

Each workshop started by identifying factors contributing to student basic needs insecurity, using an exercise called Graphs Over Time. Graphs Over Time exercises are used frequently in participatory research to promote systems thinking, generating discussion around the complex processes and systemic issues that shape whether and how students experience food and housing insecurity (Calancie et al., 2018). Facilitated discussions about the graphs can "capture how the issue of interest and other relevant factors change over time" (Frerichs et al., 2020, p. 5). Therefore, although this is not a traditional asset-mapping activity (in that it does not focus exclusively or mainly on assets or resources), by prompting participants to reflect on the broader context, the Graphs Over Time exercise helped set the stage for a more nuanced discussion of the re-

sources that best address the issues of interest.

In our workshops, we asked participants to draw line graphs of trends that they perceived could have affected basic needs insecurity among NC State students over the last two decades. For example, to represent an idea of how costs of college have increased, participants might graph their estimate of the average price of tuition over time. Although participants made multiple graphs during the brainstorming phase, each person then selected one to put up on the board while avoiding duplication with other participants' graphs. Facilitators then led a discussion about overarching patterns in the graphs. During the workshops, one of the facilitators categorized graphs into contributing factors (described in more detail in the findings—for example, "increased costs of living"). Participants then voted on the contributing factors that they felt were most relevant to basic needs insecurity at NC State. Each participant voted using three stickers, which they could apply in a variety of ways to demonstrate intensity. If they felt strongly about a particular contributing factor, they could use all three stickers on that category; if they felt that three categories were equally important, they could apply one sticker to each.

Exemplars and Values

In the next activity, participants identified organizations and programs on campus and in the larger community that address food and housing insecurity among students. In the student workshops, students drew maps that located these organizations and programs spatially. Since our focus was on students' experiences of food and housing insecurity, we did not have employees draw maps. Instead, faculty and staff made lists of these organizations on index cards. In all workshops, participants then voted on the most exemplary organizations— the organizations they felt were doing the best work related to housing or food insecurity. When voting, each participant again had three stickers to use; they could put all three on one organization or distribute them among multiple organizations. Following the vote, facilitators listed the exemplars with the most votes. Facilitators led participants in a discussion of why these organizations were exemplary, and participants voted on their top reasons.

Key questions asked by facilitators during this conversation included: "What are these organizations or programs doing that other organizations aren't?" and "Why do students go to these places most often?"

Strategic Planning

After the student and faculty/staff workshops, all participants were invited to a joint strategic planning session to determine the next steps for addressing the higher-level causes of basic needs insecurity at NC State. We started the strategic planning session by reviewing findings from previous workshops. Participants were then divided into groups of four to seven participants; groups included a mix of students, faculty, and staff. Facilitators assigned each group to focus on either food or housing insecurity. To begin, individuals recorded potential strategies on a sticky note, which they then shared with their group. Participants categorized strategies according to the campus group that would take action around their strategy.[3] They did this by placing the sticky notes on a posterboard with the following categories: (1) students and student organizations, (2) faculty members, (3) campus programs and organizations, and (4) university administrators. After giving each member time to develop and categorize their ideas, the groups discussed all the ideas and determined one promising strategy to share with the full group. Before the end of the workshop, facilitators asked each participant to write down one concrete step they could take to improve basic needs security among students. Examples included "adding a statement on basic needs security to my syllabus" and "sharing information about campus resources with others."

Analysis

We used quantitative and qualitative methods to analyze the data generated in the asset-mapping workshops. We did two rounds of analysis, during and after the workshops. During the workshops, workshop leaders synthesized responses and recorded tallies of any votes or polls, according to responses made during each activity. For example,

during the exemplar activity, leaders lined up the sticky notes on a white board or the floor to create a visual graph of sticky notes so that participants could see the data in real time. Additionally, we kept the sticky notes and index cards that participants created. After the workshops, we entered the information written on the cards into a spreadsheet so they could be organized, summarized, and analyzed in more detail (as shown in the charts below). The graphs (from the Graphs Over time exercise) were analyzed similarly. Overall, workshop participants discussed 47 student graphs and 48 employee graphs. We also collected and coded extra graphs (85 among students, 14 among staff); these were often duplicate graphs but gave useful information about frequency. After the workshops, the first two authors used NVivo, a computer-assisted qualitative analysis software (CAQDAS) program, to code and analyze the graphs and index cards. We classified the graphs by workshop (one of the student workshops or the faculty/staff workshop), workshop activity (for example: graphs over time, exemplars and values) and whether the graph was included in the discussion. The two first authors coded the graphs and index cards separately, met to discuss the process, and developed a codebook based on the discussion.

Our coding process for the graphs and index cards is akin to in-vivo coding, which "prioritize[s] and honor[s] the participant's voice" (Saldaña, 2012, p. 91). The codes thus reflect the way participants themselves described key factors. For example, two codes were *food cost* and *bad jobs*. Eventually, researchers collapsed codes into several key issues; for example, *cost of living* included subcodes for housing, food, and healthcare costs, and *employment issues* included subcodes for living wage, necessity of college degree, and bad jobs.

As a team, we also listened to and transcribed notes taken during sessions, looking for key quotes that either aligned with or diverged from the findings generated during the earlier analysis of index cards or graphs for each workshop activity. In identifying key statements, we focused both on the assets that people identified (key resources or pro-

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[3] To give a few examples, proposed strategies included implementing mandatory training around basic needs resources for instructors, developing emergency temporary housing programs, and increasing stipends for graduate students.

grams) and the underlying values and assumptions, which Jakes and colleagues (2015) note are critical to developing sustainable and community-driven solutions for change. The quotes thus give additional context to the thematic analysis described above. Below, we present participant quotes as supportive data; in some cases, quotes have been lightly edited for clarity and grammar, but not in a way that changes the meaning.

Positionality Statement

All four authors were involved in the design and facilitation of the workshops. Two of the authors are white cisgender women and tenured faculty who study food insecurity and community engagement across projects spanning more than 10 years. Two authors are cisgender women Ph.D. candidates. One student is a Latina Ph.D. candidate from Mexico and the other student is a white woman from the United States. Both students have conducted research on food insecurity and community engagement throughout graduate school

and have volunteered or interned with organizations focused on food systems inequality. Approximately 18 months after the workshops concluded, one of the student authors began working for NC State's student basic needs and emergency aid office, which assists students in need with food, housing, or other basic needs. In addition to facilitating the workshops, all authors were involved in recruiting participants from a variety of backgrounds to ensure the representation of multiple identities.

Results

Workshop participants were diverse in terms of race and ethnicity (see Table 1). However, some groups of people were underrepresented. Among both groups (faculty/staff and students), more women participated than men. Almost a quarter of students participating identified as LGBQ+. However, few faculty or staff identified as LGBQ+, and no trans or nonbinary students or faculty or staff participated.

Table 1. Demographic Data of Workshop Participants

Demographic Categories	Faculty and Staff (*n*=28)	Faculty Population*	Students (*n*=37)	Campus Population [a]
Gender Identity				
Man	4 (14%)	1,453	8 (22%)	19,014 (52%)
Woman	24 (86%)	1,004	29 (78%)	17,290 (48%)
Nonbinary/Trans[a]/Other	0 (0%)	[b]	0 (0%)	[b]
Sexual Orientation				
Straight/ Heterosexual	22 (79%)		26 (78%)	
LGBTQ+	2 (7%)		9 (24%)	
No response	4 (14%)		2 (6%)	
Race and Ethnicity				
White	13 (46%)	1,793 (73%)	14 (38%)	22,406 (62%)
Black/African American	9 (32%)	113 (5%)	9 (24%)	2,258 (6%)
Asian/South Asian	1 (4%)	230 (9%)	6 (16%)	2,432 (7%)
Latino/a/x or Hispanic	3 (11%)	103 (4%)	4 (11%)	2,2011 (6%)
American Indian or Alaska Native	1 (4%)	3 (0.1%)	0 (0%)	138 (0.4%)
Mixed race, Other	1 (4%)	107 (4%)	3 (8%)	1,207 (3%)
Unknown	0 (0%)	105 (4%)	1 (3%)	1,689 (5%)

[a] Data for the campus population come from the 2019 university census (NCSU ISA, 2019). In the census, "non-resident alien" is included as a separate category, so these numbers do not add up to 100%.
[b] In this year of the university census, gender was tracked as binary man/woman.

Contributors to Food and Housing Insecurity:
Student Responses

During the Graphs Over Time activity, students overwhelmingly identified the high and rising costs of living and education, as well as job insecurity, as contributors to food and housing insecurity (see Figure 1). "Increased cost of living" represented the largest category, accounting for almost half (45%) of student graphs. Within this category, housing costs were most frequently mentioned, accounting for almost half of the cost-of-living graphs (44% of graphs within this category, 20% of total). Students cited a lack of affordable housing and a general rise in Raleigh's housing costs. "The supply of affordable housing is outrun by the demand for affordable housing," noted an international graduate student. The second-most-mentioned category was the cost of food, both on campus and off (29% of cost-of-living category, 13% of total). An undergraduate student explained that "the increasing cost of the dining plans" contributed to food insecurity. "If it was cheaper,

more students could afford it," they explained. "The cheapest [plan] doesn't provide as many swipes."

Students connected the rising costs of living to broader structural factors. For example, one graduate student argued that universities focused their marketing efforts on wealthy students and ignored other students' needs. They explained, "They have these glossy images of luxury stuff, like updated dorms … and I think the housing in this city reflects that, too. … But it's not actually fulfilling the needs of the students. We're paying the fees for things that many of us will never use." (The student here is referring to the mandatory fees that all students pay, even when they are funded by assistantships. These fees can represent 10% of graduate students' net stipends.)

Students also emphasized how food and housing access intersect. A graduate student stated that the "gentrification of downtown Raleigh" had contributed to higher rents; they explained that gentrification is why "there is a Whole Foods but not a

Figure 1. Perceived Contributors to Food and Housing Insecurity Among Students, Based on Workshops with Students
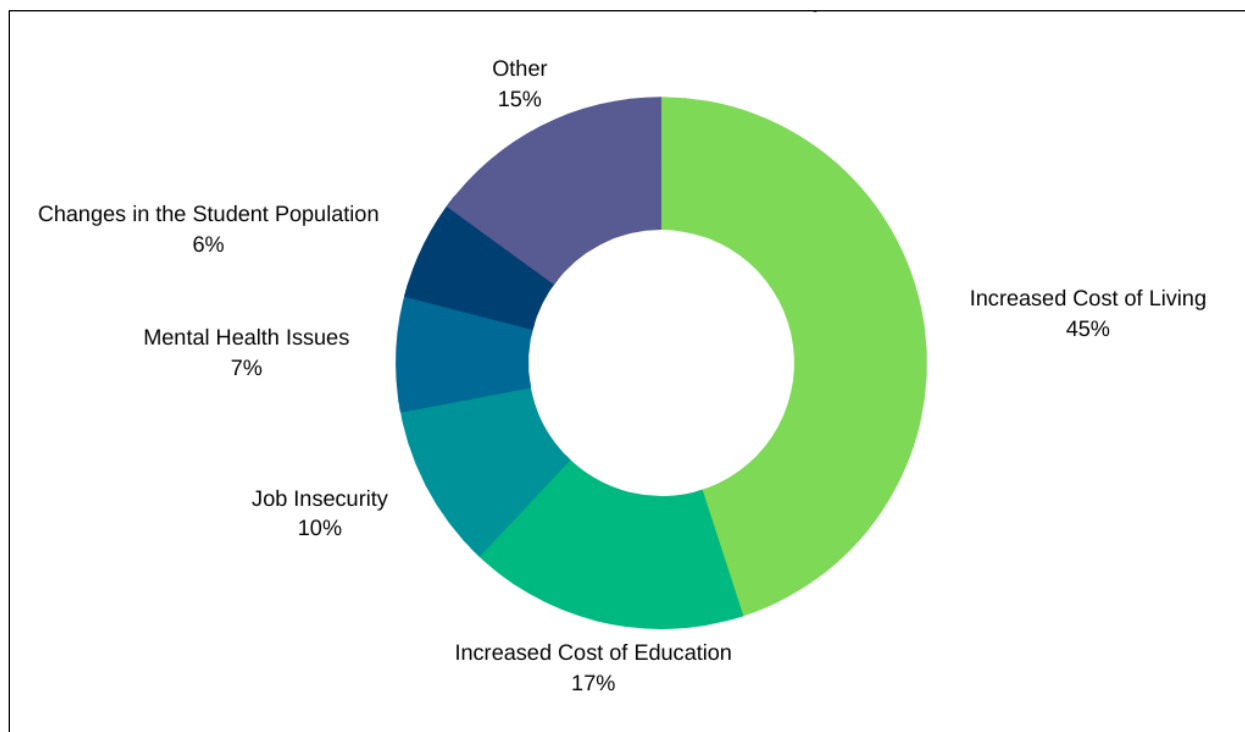
Data: Graphs Over Time activity in the student workshops.

Food Lion near [campus]" (contrasting high-end and conventional grocery chains), which in turn leads to higher food costs for students.

Second, students identified the "increased cost of education" as contributing to food and housing insecurity. Students emphasized how education costs had risen faster than wages and financial aid. One graduate student explained that their department had recently raised graduate student stipends for the first time in years, but student fees had continued to increase every year. Another undergraduate student agreed, explaining, "Just thinking about if you have a certain amount of money that you're going to allocate towards your education, and the fees keep rising, tuition keeps rising, the cost of your courses and everything like that [keeps rising]. … The money slowly depletes, and then you don't have any wiggle room. …" Participants noted that these concerns were especially salient for first-generation college students and students from economically disadvantaged backgrounds.

Third, students cited stagnating "job insecurity" and stagnating wages as contributors. Many of the students who participated in the workshops worked in addition to attending school but noted that it was difficult to find well-paying jobs. "[Wages] are not keeping [up] with inflation," commented a graduate student. An undergraduate student noted that "work-study jobs are [often] minimum wage and it's not anything that you can live off of." In addition, students noted the tension between having to work to cover basic needs and being able to invest in their future. As one undergraduate student explained, some students can focus on "work to get good grades and increase their professional development," while others have to work to pay their bills. In other words, having to work to pay for school may mean some students miss out on low-paying or unpaid internships or leadership opportunities that offer long-term benefits.

In sum, students cited the rising costs of living and education and job insecurity as the main factors contributing to basic needs insecurity. Students mentioned several other factors. They noted that the shrinking government safety net exacerbates these problems. An undergraduate student explained that "people don't want to apply to SNAP" because of stigma. Consistent with other

research on student participation in food assistance programs (Larin et al., 2018), another student (a social work major) stated that many students were unaware that they qualified for SNAP or other governmental support programs, citing confusion over how many hours students needed to work to qualify. The campus-wide survey discussed above corroborated this finding; it found only 1% of the full sample and 2% of students who were food insecure received SNAP benefits (Haskett, Kotter-Grühn et al., 2020). As one student explained, "If you have an emergency, there are very [few] resources you can turn to … besides immediate family." Many of the students who participated in the workshops, and nearly one-fifth of incoming undergraduate students at NC State, identified as first-generation college or working-class students. Because of this, students emphasized that they and their peers do not have family resources to draw from during difficult times, exacerbating inequalities and reducing access.

Contributors to Food and Housing Insecurity: Faculty and Staff Responses

Faculty and staff also participated in the Graphs Over Time exercise (see Figure 2). Similar to the students, many identified "increased cost of living" as a major factor (27% of all graphs). Again, high housing costs were the most frequently cited concern in this category (52% of responses within the category, 14% of all responses). Compared to students, faculty and staff were much more likely to link basic needs insecurity to "political and economic factors" (23% of all graphs). By this, we mean state and national policies and macroeconomic changes. In this category, faculty and staff cited decreases in the real value of the dollar and in consumers' disposable income and shifts in higher education funding. For example, one participant stated that at NC State and other public universities, "legislative [support] for universities [has] … decreased over time."

Several participants noted how the 2008 recession had contributed to increased economic inequality. "I think some people at the top are able to bounce back from [the recession]," while people at the bottom of the economic ladder were not, explained one participant. Another cited the destabili-

Figure 2. Perceived Contributors to Food and Housing Insecurity Among Students, Based on Workshops with Faculty and Staff
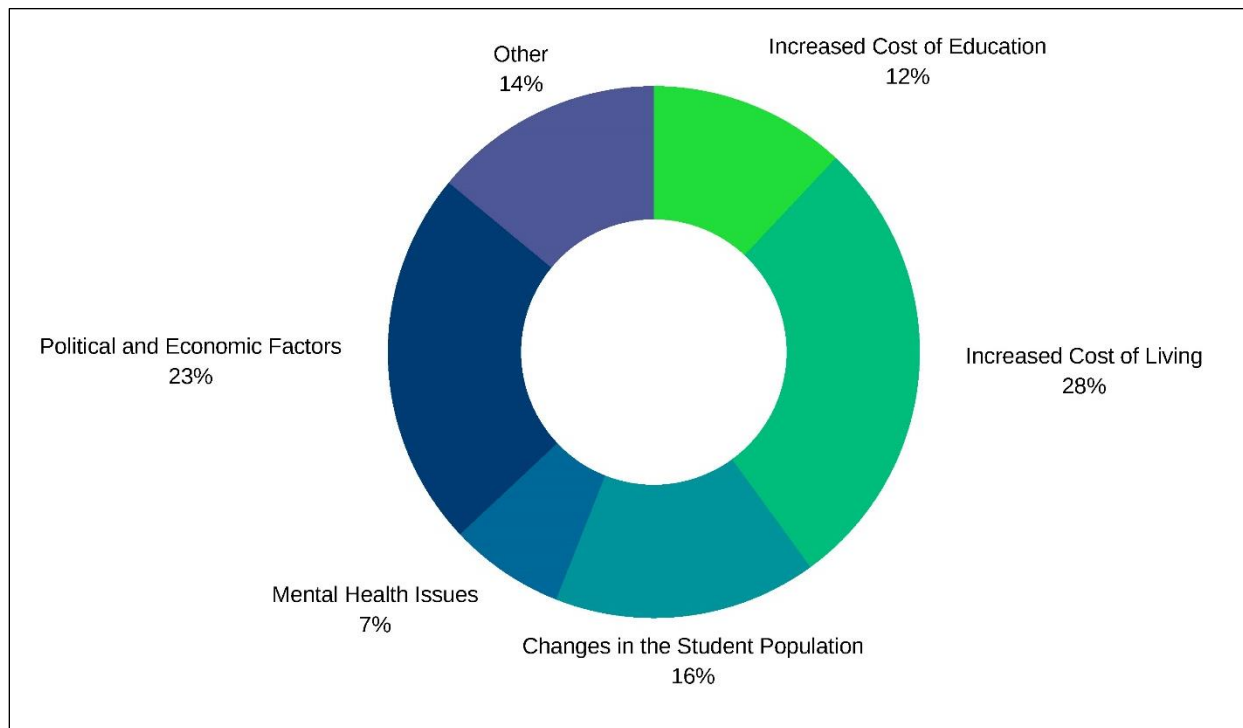
Data: Graphs Over Time activity in the faculty and staff workshop.

zation of the middle class. This is "rooted back in NAFTA," they said, explaining that in recent decades, blue-collar manufacturing jobs have moved out of the U.S., which had "created financial struggles" for families, who were "no longer able to participate in [financing] students' educations." In sum, compared to students, faculty took a wider view of the problem of basic needs insecurity, describing it as a systemic issue rooted in political and economic processes that went back decades, including cuts to public education funding and the safety net, growing economic inequality, and the hollowing out of the middle class.

Faculty and staff also stated that "changes in the student population" contributed to food and housing insecurity. They perceived and valued how the student population had become more economically diverse but felt that the university offered insufficient support for these students (16% of all graphs). Specifically, participants described a growing share of students from low-income households, students who were financially independent from

their parents, students caring for dependents, and international students. These perceptions are reflected in university data; for example, a recent summary of the incoming cohort of undergraduate students highlights a 17% increase in first-generation students and a 13% increase in underrepresented minority students over the past year (NC State University Communications, 2021). While faculty and staff applauded the increase in access to higher education, they noted a growing gap between the "haves and have-nots on campus." One noted, "The student population has changed dramatically in the last five years, but the higher education system hasn't changed in one hundred years, and so we're putting students into a system that's not set up for them to succeed."

Overall, like students, faculty and staff emphasized how rising costs of living, particularly related to housing costs, had contributed to food and housing insecurity. Rather than focusing on stagnating wages or a lack of high-paying jobs, faculty and staff emphasized higher-level economic and

political factors that were out of the control even of university administrators. These included cuts to public funding for education in North Carolina and growing economic inequality over the last several decades. By acknowledging the importance of universities' attempts to recruit a more diverse population, while calling out its deficits in supporting these students, participants embraced an equity-based approach, emphasizing that the university has a duty to better support historically marginalized students. As one participant said, "The number of first-generation college students is increasing, which is a success, but we don't have the support system or just the knowledge [about where to find resources]."

Exemplars: Who Is Doing the Best Work, and Why?

A second set of activities focused on asking students, faculty, and staff to identify the organizations, resources, and programs that were doing the most exemplary work to address food and housing insecurity among students. We describe the results below.

Food Insecurity

Across all workshops, participants identified the campus food pantry as one of the top five organizations or programs addressing food insecurity. The Pack Essentials program, an umbrella organization with resources for students experiencing basic needs insecurity, was also identified as an exemplary resource. Participants mentioned the "meal swipe" program and emergency fund, administered by Pack Essentials, as key resources. Through the meal swipe program, students can donate unused guest meal swipes to a pool of meal credits. Administrators then use the pool to create "meal scholarships" (e.g., 10 free meals, or a free month of the meal plan).

Beyond this consensus, there was some variation in the exemplars identified by each group. For example, one student group named NC State Dining as an exemplary organization, because students received a free meal if they worked in campus dining jobs. Participants in two groups (the faculty/staff workshop and one student workshop) identified SNAP as a critical service, highlighting

on-campus resources that assist students in determining if they qualify and help them complete SNAP applications. Across both student workshops, participants identified TRIO, a federally supported campus program that assists and advocates for historically marginalized students experiencing academic, career, and life challenges. Faculty and staff emphasized the broad array of student services that were available on campus, including TRIO and others (e.g., financial aid office, counseling center). In general, while some participants mentioned off-campus resources (including off-campus food pantries and a pay-what-you-can café), all groups focused primarily on campus resources.

Housing Insecurity

In all workshops, participants identified Pack Essentials as a key resource for students experiencing homelessness and housing insecurity. They also talked about the importance of local shelters. Beyond this, there was substantial variation in the exemplars named in each workshop. For example, TRIO was listed in both student workshops as a critical resource for students experiencing housing insecurity, whereas faculty and staff named University Housing and the student emergency fund. Students talked about informal resources that they or their friends had used when they needed a place to stay for a night or two, including social networks (friends they could stay with) and campus libraries, which are open 24 hours a day. Students also discussed using social media (e.g., Google Sheets and Facebook Groups) to find information about housing resources. These informal networks did not come up in the faculty/staff workshops.

Values: Why Are These Organizations and Programs Exemplary?

After identifying exemplars, each workshop group discussed why these assets were exemplary. The student groups, but not the faculty/staff group, prioritized accessibility. Students discussed how resources needed to be easy to get to or close to places where students lived, so that students did not need a car to access them. Although accessibility was not explicitly mentioned during the faculty/staff workshop, they noted that it was im-

portant to concentrate resources in one place. As one staff member explained, "It's the one-stop shop. … They don't have to figure it out; they have somebody there that's going to point them in the right direction." Both student groups also emphasized that exemplary organizations did not require proof of eligibility or documentation; they did not make students "jump through a lot of hoops" to prove they were eligible for help.

All groups ranked and valued intangible attributes of exemplary organizations. Students stated that organizations should be knowledgeable about student needs and respond by addressing the specific challenges faced by students in different situations. For example, one undergraduate student group praised organizations that take "an intersectional approach," meaning that they consider and respond to the multiple layers of disadvantage and oppression faced by students. A student in this group explained, "When they [the university] do that work, they need to make sure they're taking into account all non-traditional students, international students, students who may have been okay at the beginning of the year and then they're facing some sort of issue where they have a home to go to but maybe it's not safe for them to go there." These types of insights highlight the need for an equity-based approach that centers the voices and experiences of marginalized students regarding the assets they turn to and why they trust and utilize these organizations and resources. Students stressed that resources were not useful or accessible if their peers were unwilling or unable to take them. Another participant noted that many of the programs and resources addressing food and housing insecurity are targeted at undergraduates, leaving a void for faculty, staff, and graduate students in need. As one participant noted, "When we were looking at housing, is there emergency housing for faculty and staff? No. Graduate students? We're not really sure."

Finally, all groups called for and valued comprehensive, structural solutions that address students' long- and short-term needs. While conversations focused mostly on exemplars and values, some took a critical tone, particularly around what participants described as "Band-Aid approaches" to solving problems. Faculty and staff emphasized

that exemplary organizations and programs take a systems approach to food insecurity and homelessness, rather than only offering short-term fixes. One university employee stated, "We have a lot of resources for immediate needs but very few for prevention." Another responded, "So, we're doing the Band-Aid part, but now we've got to back up to the second part where we can identify students before they get to the crisis [stage]." A student similarly used the word "Band-Aid" to describe the university's approach, explaining, "A lot of these are Band-Aids because of institutional-level policies. … But it can be institutional-level change that is required. ... Because all these programs are just filling in the gaps where institutions are failing." Emergency responses, or "Band-Aids," including the campus food pantry, meal scholarship program, and emergency fund, are essential for students in crisis. However, participants prioritized upstream solutions that could address the root causes of basic needs insecurity.

Finally, participants also talked about how exemplary organizations and resources destigmatize seeking help. One staff member explained, "For many of us in this room we've been working on this for a long time. … Now we're a compassionate community that has a few more resources to do something." Students echoed the emphasis on compassion and care, with one student noting that exemplary organizations are "not going to judge you for telling them that you need help." In emphasizing the need for a nonjudgmental approach, participants identified how offering care and support for human dignity is a key element of a justice-oriented approach to addressing food insecurity. Across the workshops, students, faculty, and staff agreed that available resources were addressing some of the existing needs, but argued that there is still work to be done in addressing the structural processes that drive food and housing insecurity, particularly for students from historically oppressed communities.

Strategic Planning: Pulling It All Together
During the final session, students, faculty, and staff suggested ways to reduce and prevent basic needs insecurity among students. They called for the integration of strategies and collaboration be-

tween programs across the university. For example, participants noted that the university needed to do a better job of making students aware of existing resources like the student emergency fund, on-campus food pantry, and meal-swipe programs. They called for improved training for faculty members so that they could better support students in identifying resources. As one faculty member stated, "How can we increase the awareness of these resources? So [our group] went with mandatory—underlined, bold, italicized—training for faculty and staff, including, but not limited to, adding Pack Essentials to every syllabus." This group argued that faculty should talk more openly with students about how to find resources and support and that resources should be consolidated into a "hub" for students so they are easy to find and use.

Participants also discussed how increasing awareness is insufficient. Instead, programs and services need to be fundamentally restructured to better support students, particularly those from historically oppressed communities. For example, one group suggested allocating a set number of free or low-cost rooms in the residence halls. Another noted the need for inclusive housing that supports "the different types of students who may need housing," including students with different family configurations, gender identities, and disabilities. As one student stated:

> [The housing office is saying], "we're keeping housing open for everybody over spring Break" but then still having trans students living in situations that are unsafe. … [University Housing] needs to make sure they're taking into account all nontraditional students, international students. … I think that's a really important thing, because anything less than an intersectional approach will be a Band-Aid.

As noted above, the 2017 survey conducted at NC State found that students who identified as transgender or nonbinary were more likely to have experienced a period of homelessness compared to others in the sample (Haskett, Kotter-Grühn et al., 2020; Haskett et al., 2018). The group noted that

universities could counteract this by being responsive to the housing needs of LGBTQ+ students and acknowledging that housing options often require tailored support.

Additionally, several participants noted the unique situation of graduate students, who often have to find and pay for housing before they have the resources to do so (e.g., a first paycheck from an assistantship). They noted, "The university needs to be more proactive about that rather than being like, 'In four to six weeks, you're going to have the money." In short, participants felt that decisions about new housing resources should be student-centered and focused on creating accessible, safe housing that meets the financial needs of all students.

When talking about other necessary changes, participants emphasized the need to move beyond emergency responses (e.g., food pantries), although they acknowledged that these are necessary. Instead, several groups proposed upstream changes like raising wages for student workers and graduate assistants, covering meal plans fully, and keeping residence halls open during winter breaks. Making these types of changes requires funding, time, and collaboration across the university.

As the discussion progressed, the conversation turned to the need for big, structural changes that fall outside the scope of the university. As a graduate student stated, "I think that we really need to focus on the bigger structural changes that need to take place and that includes increasing wages, and not for undergraduates but for graduates as well." Suggestions included increasing student financial aid packages, advocating for increased funding for public education, and ensuring that on-campus and off-campus jobs pay a living wage.

Discussion

In summary, across all workshops, participants expressed the view that NC State is already doing important work to address basic needs insecurity among students. This is particularly true regarding food insecurity; participants cited the on-campus food pantry, meal share program, and student emergency fund as exemplary resources, along with several community resources (e.g., local food pantries, a pay-what-you-can café). Participants gener-

ally felt there were fewer resources available to address housing insecurity, but did list several exemplary resources, including the student emergency fund, University Housing, and the Student Services Center. The fact that there were more resources for food insecurity than housing insecurity is supported in the literature, which has identified similar patterns at other institutions (Broton & Goldrick-Rab, 2018; Hallett & Freas, 2018). It may be easier to respond to food insecurity given that responses can be short-term or one-time and that food costs are considerably lower than housing costs. Universities also need to work with students, faculty, and staff to determine programs and services needed to ensure students have adequate housing, including during semester breaks (Broton & Goldrick-Rab, 2018).

Participants shared that many students were unfamiliar with the resources available to them. They offered a number of suggestions, from creating a physical "basic needs hub" (a centralized place where students could go to access and learn about a wide range of resources) to encouraging or requiring instructors to communicate information about existing resources on their syllabi. Participants also noted that faculty, staff, and students must normalize experiences of food and housing insecurity, in order to encourage students to actually use available resources. Several participants named this as their individual priority, committing to "actively work to destigmatize" basic needs insecurity.

Related to this, our findings reveal that while it is important to recognize and learn from the exemplary resources named by participants, it is perhaps more important to consider the underlying reasons why participants trust and value these resources, as Jakes and colleagues (2015) argue. Our findings offer insight into the priorities and values that colleges and universities should consider as they implement programs and policies to address food and housing insecurity. While recognizing the good work happening, participants repeatedly called on universities to commit to support the education of all students, which requires addressing acute and chronic basic needs insecurities and meeting the unique needs of students from historically marginalized communities (see also Mat-

thews et al., 2019). For example, LGBTQ+ youth experience high rates of housing insecurity, with poverty and family rejection as contributing factors (Robinson, 2018). Simply admitting more students from underrepresented groups is not sufficient; universities have a responsibility to ensure that all students have the resources and support they need to succeed.

Across the workshops, participants agreed that universities should respond quickly and provide direct support (for example, financial assistance), rather than just information or advice. Students emphasized the need for resources that are easy to get to and do not require a lot of paperwork to demonstrate eligibility, echoing other studies of federal food programs that emphasize the importance of access and ease of use (Radcliff et al., 2018; Robbins et al., 2017). Finally, participants also agreed that exemplary resources take an intersectional approach (see also Duran & Núñez, 2021). Echoing research on food assistance programs (Andress & Fitch, 2016; Peterson et al., 2022), participants valued organizations and resources that recognized the interlocking oppressions that shape students' realities and work to build trust and relationships to better support students' basic needs. Some of these exemplary resources were student-led, such as social networks of mutual aid that offered students places to stay when they experienced housing insecurity. As Matthews and colleagues (2019) note, future work should explore informal mutual aid networks as a site of support, to center students' agency in addressing their complex and specific needs related to basic needs security.

We should note that this work has some important limitations. First, although the workshops focused on addressing and preventing food and housing insecurity among NC State students, we did not ask students to identify whether they were food or housing insecure in our background survey. We deliberately chose to do this because we did not want students to feel further stigmatized or harmed by having to name this reality (Peterson et al., 2022). Therefore, we do not know how many food or housing insecure students participated in the workshops, which is a limitation. However, when recruiting, we specifically worked with organ-

izations that serve students who are more likely to experience basic needs insecurity. Moreover, given student responses that highlighted previous experiences of precarity in food and housing insecurity, we believe that we were able to reach and include this population. Additionally, although we conducted extensive recruitment with the campus community centers that support historically marginalized students, the workshops did not include trans or nonbinary students, whose experiences of food and housing insecurity are often compounded by other experiences of stigma and discrimination (Matthews et al., 2019; Robinson, 2018). This is a limitation of our study and an area that needs further research.

As colleges and universities move to address food and housing insecurity among students, methods like asset-mapping workshops can help them think critically about not only the types of services that are offered, but how they are offered. Do the services reflect the values and priorities of the students they serve? Do students feel that service providers are trustworthy and caring? Understanding why students do or do not utilize resources is a vital aspect of creating a campus environment that addresses students' basic needs. Administrators, faculty, and staff should work collaboratively with students to develop initiatives that reflect the values, priorities, and experiences of the students and campus they serve.

This work shows how many of the processes driving food and housing insecurity are out of the control of students and even faculty, staff, and administrators. Universities cannot adequately address the root causes of food insecurity without confronting the inequalities and injustices that shape them. These include rising costs of housing, cuts to public spending on higher education, increases in tuition, and stagnating wages (Bruening et al., 2017; Nazmi et al., 2019). As participants noted during the workshops, the individual actions that people are taking in their classrooms, programs, and social networks are important. However, many of the existing and exemplary initiatives identified in the workshops are what participants called "Band-Aid" solutions to structural problems.

There is no easy fix to addressing food and housing insecurity on college and university cam-

puses, but it is imperative that universities move from responding to downstream crises to addressing the upstream causes of those crises. This is particularly true as universities and colleges continue to confront the broad and long-term impacts of the COVID-19 pandemic. Although these workshops were conducted before the COVID-19 pandemic, the pandemic and the accompanying economic inflation have exacerbated the problems identified here, including rising housing and food costs, as well as social isolation. A February 2021 report from the Pack Essentials Steering Committee identified a "dramatic increase in food insecurity and homelessness" during the pandemic (Haskett & Dorris, 2021, p. 14). The unprecedented food and housing needs of students at NC State and many other universities during the COVID-19 pandemic have exposed and exacerbated inequalities in the U.S. educational system.

NC State, like many universities, continues to struggle to adequately address the root causes of basic needs insecurity. For example, graduate stipends remain far below a living wage, despite efforts by some colleges and programs to increase stipends. Food and housing costs have risen; one analysis estimated that housing costs in Raleigh rose by more than 30% in 2021 alone (Parker, 2022). Campuses that had previously developed resources to address basic needs insecurity, as NC State had, are better equipped to build coalitions that can be activated in the face of crises like the pandemic. However, even these institutions have a long way to go.

Future research should engage students, faculty, and staff at a range of higher education institutions to discuss exemplary assets on their campuses and the reasons these assets are trusted and valued. Engaging with different kinds of institutions and students can provide additional insight into the unique needs and experiences of different types of students (e.g., international students, undocumented students, disabled students, transgender students), as well as the opportunities and resources offered by different types of institutions. Future research on basic needs insecurity should also consider other types of needs (for example, childcare, technology, or transportation).

Conclusions

Preventing food and housing insecurity requires a broad coalition of collaborators with the capacity to act at multiple levels (Freudenberg et al., 2019). For faculty and staff, this could mean integrating support for students experiencing basic needs insecurity into syllabi and teaching. For administrators, it may mean creating safety net programs and paying undergraduate and graduate workers a living wage. For policymakers and key stakeholders, it could mean advocating for policies that approach food and housing insecurity from a systems- and equity-based perspective: raising wages, creating affordable housing, and investing in higher education.

We argue that community-oriented research methods like asset mapping can aid campus communities in adopting an equity- and justice-based approach to food and other forms of basic needs insecurity, by centering the students' voices and experiences and mobilizing campus partners to understand and address the structural roots of these issues. Activities like Graphs Over Time help participants see the long-term trajectories and implications of the issues students face. By reflecting on why certain organizations and programs are valued, participants and campus leaders gained a greater appreciation of the ways that students prioritized resources that took an intersectional, caring approach to service provision. Furthermore, collaborative strategic planning activities can generate strategies for change that build on existing assets and recognize the larger, structural drivers of basic needs insecurity. As participants noted, to have any long-lasting impact, these solutions must move beyond "Band-Aid responses," and instead address the structural and systemic realities that shape the lives and experiences of students who are food and housing insecure.

References

American Association of Collegiate Registrars and Admissions Officers [AACRAO] & The Hope Center for College, Community, and Justice. (2020). *Student basic needs: Institutional services and awareness: Results of the AACRAO March 2020 60-Second Survey.*
https://www.aacrao.org/docs/default-source/research-docs/aacrao-march-2020-student-basic-needs.pdf

Andress, L., & Fitch, C. (2016). Juggling the five dimensions of food access: Perceptions of rural low income residents. *Appetite*, *105*, 151–155. https://doi.org/10.1016/j.appet.2016.05.013

Blevins, J., Thurman, S., Kiser, M., & Beres, L. (2012). Community health assets mapping: A mixed method approach in Nairobi. In J. Olivier & Q. Wodon (Eds.), *Mapping, cost, and reach to the poor of faith-inspired health care providers in Sub-Saharan Africa: Strengthening the evidence for faith-inspired health engagement in Africa* (Vol. 3, pp. 76-90). World Bank. http://hdl.handle.net/10986/13573

Broton, K., & Goldrick-Rab, S. (2016). The dark side of college (un)affordability: Food and housing insecurity in higher education. *Change: The Magazine of Higher Learning*, *48*(1), 16–25. https://doi.org/10.1080/00091383.2016.1121081

Broton, K. M., & Goldrick-Rab, S. (2018). Going without: An exploration of food and housing insecurity among undergraduates. *Educational Researcher*, *47*(2), 121–133. https://doi.org/10.3102/0013189X17741303

Bruening, M., Dinour, L. M., & Rosales Chavez, J. B. (2017). Food insecurity and emotional health in the USA: A systematic narrative review of longitudinal research. *Public Health Nutrition*, *20*(17), 3200–3208. https://doi.org/10.1017/S1368980017002221

Butler, A., & NCSU Office for Institutional Equity and Diversity [OIED] Staff. (2018, April 6). Food and housing security initiative coordinates basic necessities. *Office for Institutional Equity and Diversity News*. https://diversity.ncsu.edu/news/2018/04/06/food-and-housing-security-initiative-coordinates-basic-necessities/

Calancie, L., Anderson, S., Branscomb, J., Apostolico, A. A., & Hassmiller Lich, K. (2018). Using Behavior Over Time graphs to spur systems thinking among public health practitioners. *Preventing Chronic Disease*, *15*, Article 170254. https://doi.org/10.5888/pcd15.170254

Camelo, K., & Elliott, M. (2019). Food insecurity and academic achievement among college students at a public university in the United States. *Journal of College Student Development*, *60*(3), 307–318. https://doi.org/10.1353/csd.2019.0028

Chaparro, M. P., Zaghloul, S. S., Holck, P., & Dobbs, J. (2009). Food insecurity prevalence among college students at the University of Hawai'i at Mānoa. *Public Health Nutrition*, *12*(11), 2097–2103. https://doi.org/10.1017/S1368980009990735

De Master, K. T., & Daniels, J. (2019). Desert wonderings: Reimagining food access mapping. *Agriculture and Human Values*, *36*, 241–256. https://doi.org/10.1007/s10460-019-09914-5

Duran, A., & Núñez, A.-M. (2021). Food and housing insecurity for Latinx/a/o college students: Advancing an intersectional research agenda. *Journal of Hispanic Higher Education*, *20*(2), 134–148. https://doi.org/10.1177/1538192720963579

Emery, M., & Flora, C. (2006). Spiraling-up: Mapping community transformation with Community Capitals Framework. *Community Development*, *37*(1), 19–35. https://doi.org/10.1080/15575330609490152

Florian, J., St. Omer Roy, N. M., Quintiliani, L. M., Truong, V., Feng, Y., Bloch, P. P., Russinova, Z. L., & Lasser, K. E. (2016). Using Photovoice and asset mapping to inform a community-based diabetes intervention, Boston, Massachusetts, 2015. *Preventing Chronic Disease*, *13*, Article 160160. https://doi.org/10.5888/pcd13.160160

Frerichs, L., Smith, N., Kuhlberg, J. A., Mason, G., Jackson-Diop, D., Stith, D., Corbie-Smith, G., & Hassmiller Lich, K. (2020). Novel participatory methods for co-building an agent-based model of physical activity with youth. *PLOS ONE*, *15*(11), Article e0241108. https://doi.org/10.1371/journal.pone.0241108

Freudenberg, N., Goldrick-Rab, S., & Poppendieck, J. (2019). College students and SNAP: The new face of food insecurity in the United States. *American Journal of Public Health*, *109*, 1652–1658. https://doi.org/10.2105/AJPH.2019.305332

Gaines, A., Robb, C. A., Knol, L. L., & Sickler, S. (2014). Examining the role of financial factors, resources and skills in predicting food security status among college students. *International Journal of Consumer Studies*, *38*(4), 374–384. https://doi.org/10.1111/ijcs.12110

Hallett, R. E., & Freas, A. (2018). Community college students' experiences with homelessness and housing insecurity. *Community College Journal of Research and Practice*, *42*(10), 724–739. https://doi.org/10.1080/10668926.2017.1356764

Haskett, M. E., & Dorris, J. (2021). *Homelessness and food & housing insecurity among NC State students during the COVID-19 pandemic.* North Carolina State University. https://drive.google.com/file/d/1UoDt6y6SNvktrzcyNBveF1XeVgN0_Am7/view

Haskett, M. E., Kotter-Grühn, D., & Majumder, S. (2020). Prevalence and correlates of food insecurity and homelessness among university students. *Journal of College Student Development*, *61*(1), 109–114. https://doi.org/10.1353/csd.2020.0007

Haskett, M. E., Majumder, S., Kotter-Grühn, D., & Gutierrez, I. (2021). The role of university students' wellness in links between homelessness, food insecurity, and academic success. *Journal of Social Distress and Homelessness*, *30*(1), 59–65. https://doi.org/10.1080/10530789.2020.1733815

Haskett, M. E., Majumder, S., Wright, S., & Kotter-Grühn, D. (2018). *Food and housing security among NC state students.* North Carolina State University. https://dasa.ncsu.edu/wp-content/uploads/2018/03/NC-State-Food-and-Housing-Insecurity-1.pdf

Jakes, S., Hardison-Moody, A., Bowen, S., & Blevins, J. (2015). Engaging community change: The critical role of values in asset mapping. *Community Development*, *46*(4), 392–406. https://doi.org/10.1080/15575330.2015.1064146

Knol, L. L., Robb, C. A., McKinley, E. M., & Wood, M. (2017). Food insecurity, self-rated health, and obesity among college students. *American Journal of Health Education*, *48*(4), 248–255. https://doi.org/10.1080/19325037.2017.1316689

Larin, K., St. Pierre, M. L., Boretti, N., Rider, J. K., & Yoder, S. C. (2018). *Food insecurity: Better information could help eligible college students access federal food assistance benefits* (Report GAO-19-95). U.S. Government Accountability Office. https://www.gao.gov/assets/gao-19-95.pdf

Maroto, M. E., Snelling, A., & Linck, H. (2015). Food insecurity among community college students: Prevalence and association with grade point average. *Community College Journal of Research and Practice*, *39*(6), 515–526. https://doi.org/10.1080/10668926.2013.850758

Martinez, S. M., Frongillo, E. A., Leung, C., & Ritchie, L. (2020). No food for thought: Food insecurity is related to poor mental health and lower academic performance among students in California's public university system. *Journal of Health Psychology*, *25*(12), 1930–1939. https://doi.org/10.1177/1359105318783028

Martinez, S. M., Grandner, M. A., Nazmi, A., Canedo, E. R., & Ritchie, L. D. (2019). Pathways from food insecurity to health outcomes among California university students. *Nutrients*, *11*(6), Article 1419. https://doi.org/10.3390/nu11061419

Matthews, P., Poyner, C., & Kjellgren, R. (2019). Lesbian, gay, bisexual, transgender and queer experiences of homelessness and identity: Insecurity and home(o)normativity. *International Journal of Housing Policy*, *19*(2), 232–253. https://doi.org/10.1080/19491247.2018.1519341

McArthur, L. H., Ball, L., Danek, A. C., & Holbert, D. (2018). A high prevalence of food insecurity among university students in Appalachia reflects a need for educational interventions and policy advocacy. *Journal of Nutrition Education and Behavior*, *50*(6), 564–572. https://doi.org/10.1016/j.jneb.2017.10.011

Moore, S.A. (2018). Practicable and justiciable: Why North Carolina's constitutional vision of higher education is judicially enforceable. *Duke Law Journal* 68, 371-416. https://scholarship.law.duke.edu/dlj/vol68/iss2/4

Nazmi, A., Martinez, S., Byrd, A., Robinson, D., Bianco, S., Maguire, J., Crutchfield, R. M., Condron, K., & Ritchie, L. (2019). A systematic review of food insecurity among US students in higher education. *Journal of Hunger & Environmental Nutrition*, *14*(5), 725–740. https://doi.org/10.1080/19320248.2018.1484316

NC State University Communications. (2021, August 17). Meet the incoming class: By the numbers. *NC State University News*. https://news.ncsu.edu/2021/08/meet-the-incoming-class-2021/

Olivier, J., Cochrane, J. R., & de Gruchy, S. (2012). Mapping religious community health assets and initiatives: Lessons from Zambia and Lesotho. In J. Olivier & Q. Wodon (Eds.), *Mapping, cost, and reach to the poor of faith-inspired health care providers in Sub-Saharan Africa* (Vol. 3, pp. 52–61). World Bank. http://hdl.handle.net/10986/13573

Ordoñez, E. (2020, October 30). *Raleigh is the second-fastest growing large metro in the United States behind Austin.* Carolina Demography. https://www.ncdemography.org/2020/10/30/raleigh-is-the-second-fastest-growing-large-metro-in-the-united-states-behind-austin/

Parker, J. (2022, February 23). Raleigh 4th, Charlotte 2nd, for greatest home price increases in U.S. [Local News]. *WRAL TechWire*. https://wraltechwire.com/2022/02/23/raleigh-4th-charlotte-2nd-for-greatest-home-price-increases-in-u-s/

Patton-López, M. M., López-Cevallos, D. F., Cancel-Tirado, D. I., & Vazquez, L. (2014). Prevalence and correlates of food insecurity among students attending a midsize rural university in Oregon. *Journal of Nutrition Education and Behavior*, *46*(3), 209–214. https://doi.org/10.1016/j.jneb.2013.10.007

Payne-Sturges, D. C., Tjaden, A., Caldeira, K. M., Vincent, K. B., & Arria, A. M. (2017). Student hunger on campus: Food insecurity among college students and implications for academic institutions. *American Journal of Health Promotion*, *32*(2), 349–354. https://doi.org/10.1177/0890117117719620

Peterson, N., Freidus, A., & Tereshenko, D. (2022). Why college students don't access resources for food insecurity: Stigma and perceptions of Need. *Annals of Anthropological Practice*, *46*(2), 140–154. https://doi.org/10.1111/napa.12190

Radcliff, E., Gustafson, E., Crouch, E., & Bennett, K. J. (2018). Uptake of Supplemental Nutrition Assistance Program benefits by participants in a home visiting program. *Social Work*, *63*(3), 244–251. https://academic.oup.com/sw/article-abstract/63/3/244/4990808

Reppond, H. A., Thomas-Brown, K., Sampson, N. R., & Price, C. E. (2018). Addressing food insecurity in college: Mapping a shared conceptual framework for campus pantries in Michigan. *Analyses of Social Issues and Public Policy*, *18*(1), 378–399. https://doi.org/10.1111/asap.12161

Robbins, S., Ettinger, A. K., Keefe, C., Riley, A., & Surkan, P. J. (2017). Low-income urban mothers' experiences with the Supplemental Nutrition Assistance Program. *Journal of the Academy of Nutrition and Dietetics*, *117*(10), 1538–1553. https://doi.org/10.1016/j.jand.2017.01.008

Robinson, B. A. (2018). Conditional families and lesbian, gay, bisexual, transgender, and queer youth homelessness: Gender, sexuality, family instability, and rejection. *Journal of Marriage and Family*, *80*(2), 383–396. https://doi.org/10.1111/jomf.12466

Saldaña, J. (2012). *The coding manual for qualitative researchers* (Second ed.). SAGE.

Scorza, D., Henderson, N., & Castillo, L. M. (2012). *Facilitating change in the food justice movement* [White paper]. People's Grocery & The Social Justice Learning Institute. https://sjli.org/wp-content/uploads/2018/09/PG_and_SJLI_Final_Paper.pdf

Silva, M. R., Kleinert, W. L., Sheppard, A. V., Cantrell, K. A., Freeman-Coppadge, D. J., Tsoy, E., Roberts, T., & Pearrow, M. (2017). The relationship between food security, housing stability, and school performance among college students in an urban university. *Journal of College Student Retention: Research, Theory & Practice*, *19*(3), 284–299. https://doi.org/10.1177/1521025115621918

State Higher Education Finance. (2021). *State profile: North Carolina* [State Profile]. https://shef.sheeo.org/state-profile/north-carolina/

U.S. Department of Agriculture Economic Research Service [USDA ERS]. (2012). *U.S. Adult Food Security Survey Module: Three-stage design, with screeners.* https://www.ers.usda.gov/media/8279/ad2012.pdf

Viswanathan, M., Ammerman, A., Eng, E., Gartlehner, G., Lohr, K. N., Griffith, D., Rhodes, S., Samuel-Hodge, C., Maty, S., Lux, L., Webb, L., Sutton, S. F., Swinson, T., Jackman, A., & Whitener, L. (2004). *Community-based participatory research: Assessing the evidence* (Evidence Reports/Technology Assessments No. 99 No. 04-E022-2). Agency for Healthcare Research and Quality (US). https://www.ncbi.nlm.nih.gov/sites/books/NBK37280/

THE ECONOMIC PAMPHLETEER
JOHN IKERD

Economies of scale in food production

Why do industrial agricultural operations continue to displace smaller family farms in spite of their continued pollution of the natural environment and degradation of rural communities? Large-scale, specialized agricultural operations, such as concentrated animal feeding operations (or CAFOs), persist because they have an economic advantage over smaller, diversified farming operations. They have higher ecological and social costs but lower economic costs. This economic advantage is commonly referred to as *economies of scale*.

In economic theory, there are two types of economies of scale. *Internal* economies of scale refer to differences in the costs of production associated with different sizes of production units. In animal agriculture, "scale" refers to the number of hogs, poultry, milk cows, or beef cattle in a single farming operation or *production unit*. In field crop and pasture-based animal production, scale refers to the acres of land in a single production

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*Why an **Economic Pamphleteer?** In his historic pamphlet* Common Sense, *written in 1775–1776, Thomas Paine wrote of the necessity of people to form governments to moderate their individual self-interest. In our government today, the pursuit of economic self-interest reigns supreme. Rural America has been recolonized, economically, by corporate industrial agriculture. I hope my "pamphlets" will help awaken Americans to a new revolution—to create a sustainable agri-food economy, revitalize rural communities, and reclaim our democracy. The collected Economic Pamphleteer columns (2010–2017) are at https://bit.ly/ikerd-collection*

unit. *External* economies of scale, on the other hand, refer to differences such as the costs of fertilizer or feed, or the cost of complying with government regulations, for different sizes of *management units*. Management units may include one or more production units under single management or control (Ross, 2022). A single farm or production unit may comprise multiple parcels of land, but a farm management unit may comprise multiple farms that are managed as a single economic entity or unit.

While the fixed costs associated with buildings, equipment, land, and other capital investments are generally higher for a larger farming operation, it can often make use of more efficient production technologies—such as a larger tractor, its own combine harvester, or a livestock confinement building. However, *internal* economies of scale of industrial farming operations exist primarily because specialized, standardized, mechanized operations are easier to manage than are diversified, individualized operations that depend more on skilled labor. Regardless, even for industrial operations, there are limits to internal economies of scale.

As an industrial farming operation becomes larger, it can become complex and difficult to manage. At some point, the rising costs associated with decreasing management efficiency exceed the reduction in total costs associated with spreading fixed costs over additional production or output. This point is referred to as the "maximum economies of scale" for a single farming operation. Additional economies of scale may be realized by larger operations that own or control several individual farming operations of production units. This is the reason multiple hog confinements, feedlots, poultry buildings, and cropping systems are often managed or controlled by single entities called "integrators."

External economies of scale exist for both single farming operations and for operations that control multiple farms or livestock production units.

> A larger farming operation can often make use of more efficient production technologies—such as a larger tractor, its own combine harvester, or a livestock confinement building.

The cost advantages include an ability to purchase feed, feeder animals, fuel, fertilizer, and other production inputs at a lower cost by buying in bulk or in truckload units. Additional price advantages include the ability to bargain for higher prices or to deliver crops or livestock to market in semitrailer truck load lots. Larger operations may also have the ability to hire better unit managers. Any *external* economic efficiency of larger individual farming operations may be multiplied by controlling or managing multiple farms or livestock production units.

Interestingly, the economic advantages of large industrial agriculture operations and integrators are primarily *external* rather than *internal* economies of scale. A variety of studies have shown that most *internal* economies of scale can be achieved by well-managed, diversified, individually owned and operated family farms (Duffy, 2009). External economies of scale for large, industrial agricultural operations arise from the ability to manage, control, and reap the economic benefits from large quantities of agricultural production, rather than from the internal economic advantages per bushel, hundredweight, or other unit of production that benefit single farming operations.

The following is an example of how economies of scale might play out on different types of farming operations. A 100-sow farrow-to-finish hog operation on a diversified family farm might market 2,000 finished hogs per year. The farmer would need to net $20 per hog to earn an income of $40,000 per year from the feed-out phase of the hog operation. A single CAFO operator might be able to produce 5,000 hogs a year, since CAFOs are specialized, routinized, mechanized and thus easier to manage. The CAFO operator would need to net only $8 per head, rather than $20, to earn $40,000 income from 5,000 hogs. So, the CAFO operator can net $12 less per hog to realize the same income as the diversified farmer.

Individual CAFO operators typically have

operated under comprehensive contracts with processors. Increasingly, however, corporate integrators are managing multiple CAFO production units that contract collectively with processors. For example, an integrator might contract with the operators of five CAFOs producing 5,000 hogs each, or 25,000 hogs in total. The integrator could pay each unit operator $10 per hog, rather than $8, and still have a $10 per-hog advantage over the diversified family farmer. The integrator would net $10 per hog on 25,000 hogs, individual CAFO operators would then net $10 per head on 5,000 hogs, compared with the diversified farmer who would net $20 per head on 2,000 hogs. In terms of *total income*, the integrator would net $250,000 ($10 x 25,000) compared with $50,000 ($10 x 5,000) for the CAFO operator and $40,000 ($20 x 2,000) for the diversified farmer.

The integrator could accept a significantly lower profit per hog and still have an economic advantage over smaller, diversified hog farmers in terms of income. Even if the smaller hog producer had lower per-hog production costs and could earn $60,000 on 2,000 hogs, the integrator could pay CAFO operators $15 per hog rather than $10 and both CAFO operator and integrator would still have an economic advantage over the diversified farmer. The diversified farmer's ability to compete in terms of *internal* economies of scale is overwhelmed by the *external* economies of large-scale, industrial hog production.

This type of economic advantage might be defined more accurately as the *economies of span* rather than *economies of scale*. Operators of multiple production units (like multiple CAFOs) are often able to negotiate with suppliers to reduce production costs and with buyers to increase prices. However, the primary economic advantage comes from the span of management control rather than either internal or external economies of scale of individual production units. Integrators who have the ability to acquire and manage large amounts of money

do not need an economic advantage in either cost per unit produced or price per unit sold. As long as production is profitable, they are able to make more profit simply by acquiring or controlling more land, buildings, equipment, and using more costly production technologies. This is the primary economic advantage of large-scale industrial agricultural operations today. The same basic kind of advantage exists for large food processors and distributors.

Why should consumers be concerned about economies of scale in agriculture? Consumers are led to believe they are the beneficiaries of the cost savings of corporate agriculture. With economically competitive markets, the benefits of lower costs of production would be passed on to consumers. However, in today's corporately dominated markets, there is no economic incentive for large-scale agri-food producers to share their economic advantages with consumers. In fact, their market domination means they can negotiate for higher prices for their products. They need only keep their margins of profit low enough to maintain comfortable positions in their overall markets.

These large corporate retailers and processors manage their business in order to maximize economic returns to their investors, rather than minimize costs to consumers. They are also able to dictate prices and terms of production to even the largest of industrial agricultural producers. For example, they pay CAFO operators just enough to keep them producing until they find others operators, often with newer facilities, who are willing to produce for even less. Lower procurement costs are added to corporate profits—not subtracted from retail costs for consumers.

If economically competitive markets were restored for agricultural commodities, retail food prices might actually decline. There also would be an economic incentive to shift from producers with *higher per-unit* costs to producers with *lower per-unit* costs of production—from large, corpo-

> Large corporate retailers and processors manage their business in order to maximize economic returns to their investors, rather than minimize costs to consumers.

rately controlled, industrial farming operations to well-managed smaller, independent family farms. Several pieces of federal legislation have been proposed to restore competitiveness to agricultural markets, but they will need strong public support to be enacted into law. The first step in restoring competitive markets is for consumers to understand that the environmental and social costs far outweigh any economic benefits they receive from economies of scale, or span, in industrial agriculture.

References

Duffy, M. (2009). Economies of size in production agriculture. *Journal of Hunger & Environmental Nutrition*, *4*(3–4), 375–392. https://doi.org/10.1080/19320240903321292

Ross, S. (2022, March 30). Internal vs. external economies of scale: What's the difference? *Investopedia.* https://www.investopedia.com/ask/answers/013015/what-are-differences-between-internal-and-external-economies-scale.asp

Marketing opportunities and challenges for locally raised meats:
An online consumer survey in South Carolina

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Abstract

South Carolina livestock producers are expanding their operations to include local meat sales, with a sizeable number of farmers entering the market for the first time. Little is known about South Carolina's local meat consumers and their buying preferences. This study aims to identify the demographic traits of local meat consumers, their preferred local meat product attributes, their desired purchasing locations, and a range of prices consumers are willing to pay for local meat. This study surveyed 1,048 South Carolina meat consumers. Of these survey respondents, 741 had consumed local meat products within the last 12 months and 307 had not. Results indicate that local meat consumers tend to be younger, reside in larger households, have higher household incomes, and have greater educational attainment. They also may be more likely to be long-term residents of South Carolina. These consumers are willing to pay a 1% to 24% premium for local meats to be eaten at home and US$1.00 to US$1.99 more per entrée for local meats at a restaurant. The most desirable attributes of local meat are hormone-free, all-natural, no antibiotics, and grass-fed. The most popular buying locations are the grocery store, directly from farms, farmers markets, butcher shops, and online ordering. Most consumers are unwilling to drive more than 20 miles (32 km) to purchase local meat. The study also uncovered barriers to consumers' willingness to purchase (or purchase more) local meats: product unavailability, high prices, food safety concerns, convenience, and ease of preparation.

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Consumer Preferences, Marketing, Willingness-to-Pay, Local Meats, Local Foods

Introduction

The United States' per capita meat consumption has increased only slightly over the last 20 years, with meat consumption varying by species. Beef consumption has declined from 97 pounds (44 kg) per person in 1999 to 83 pounds (37.6 kg) in 2020; pork consumption has been relatively flat, from 68 pounds (30.8 kg) per person in 1999 to 67 pounds 30.4 kg) in 2020; and lamb and veal combined was only 1 pound (0.5 kg) per capita in 2020 (Kuck & Schnitkey, 2021). On the other hand, poultry consumption has been on a meteoric rise over the last 50 years, from 34 pounds (15.4 kg) per person in 1970 to 81 pounds (36.7 kg) per person in 2020 (Kuck & Schnitkey, 2021). Most of the increase in poultry is made up of chicken, as turkey consumption has been between 12 and 14 pounds (5.4 to 6.4 kg) per person for at least two decades (U.S. Department of Agriculture Economic Research Service [USDA ERS], 2021).

The COVID-19 pandemic and related food chain disruptions substantially affected meat consumption patterns in the U.S. The meat processing industry calculates that the demand for meat and poultry products in 2020 rose by 34.6% over 2019 (FMI, The Food Industry Association [FMI] & Foundation for Meat & Poultry Education & Research, 2020). Some reasons given for this increase were more people cooking at home (USDA ERS, 2021), grocery store meat scarcities (Guzman, 2020), and panic buying (Lusk & McCluskey, 2020).

South Carolina witnessed the same increase in demand, and consumers turned to local livestock producers for their provisions when the grocery stores were out of meat. Local meat demand in South Carolina increased by more than 21% between April and June 2020 (Richards & Vassalos, 2021), but soon became unserviceable. South Carolina meat processors were overwhelmed, and wait times for local livestock processing rose from two weeks to over a year (Richards & Vassalos, 2020). Many South Carolina livestock producers felt they missed a golden opportunity during that time, with almost 60% of South Carolina farmers

responding that processing capacity was their most significant future challenge (Richards, 2020a).

The processing bottlenecks witnessed in South Carolina are common, and many states are looking to improve their local meat processing capacity. The USDA committed $500 million[1] for states to invest in their local meat processing infrastructure in 2021 and 2022 (USDA, 2021). And to date, at least 19 states have used Coronavirus Aid, Relief, and Economic Security (CARES) Act and American Rescue Plan Act (ARPA) dollars to bolster their local meat supply chains (Niche Meat Processor Assistance Network [NMPAN], 2022). South Carolina is the newest state to join the ranks, having just announced a $3 million investment in local meat processors that was awarded due in part to the research performed by Clemson University Cooperative Extension (South Carolina Department of Agriculture [SCDA], 2022; WLTX, 2022).

With these new capital investments in South Carolina, local meat processing capacity is expected to increase over the next few years, but the level of sustained consumer demand remains unclear (Tonsor et al., 2021). A South Carolina consumer survey asking about post-COVID-19 purchases found that 23.2% of consumers expected to buy more local meat, with 28% expecting to buy less (Richards & Vassalos, 2021). Due to these mixed results, a key recommendation from Richards and Vassalos (2021) was that South Carolina meat producers need to increase their marketing efforts to prepare for increased future processing capacity and meat production. Most likely, local meat producers in other states are facing similar issues and are looking for data provided by studies such as this one.

Literature Review

There is a wealth of literature about local food consumers and general meat consumption, but little research specifically about local meat consumers. However, the literature does help to bring into focus who is more likely to buy local meats, as the local meat consumer is both a local food consumer and a general meat consumer.

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[1] All currency in this article is in U.S. dollars.

Local Food Consumers

The literature shows that consumers are motivated to buy local foods because they believe they are fresher and of higher quality, that the purchase helps local farmers, and that local foods are better for the environment. Psychological factors also play a role in the local food purchasing decision, which is generally associated with altruistic behavior, trust in local producers, and the desire to know how food is produced (Bavorova et al., 2016; Bianchi, 2017; Cranfield et al., 2012; Kemp et al., 2010; McKee, 2021; Onozaka et al., 2010; Skallerud & Wien, 2019; Umberger et al., 2009).

Regarding demographic characteristics, the local foods consumer tends to be younger, female, white, have higher educational attainment, and have higher-than-average household income (Adams & Adams, 2008; Bavorova et al., 2016; Bimbo et al., 2021; Brown, 2003; Butu et al., 2020; Carpio & Isengildina-Massa, 2008; Cicatiello, 2020; Eastwood et al., 1999, 1987; Govindasamy et al., 1998; Jekanowski et al., 2000; Kuches et al., 2000; Loureiro & Hine, 2002; Robinson & Smith, 2002).

Local food consumer household sizes tend to be larger, and it appears to be a significant and positive relationship if the household members are married and if they have children. Household budgets are also significant, as the greater the proportion of the household budget spent on food, the less likely household members are to consume local foods (Adams & Adams, 2008; Bavorova et al., 2016; Butu et al., 2020; Cicatiello, 2020; Cranfield et al., 2012; Eastwood et al. 1987; Robinson & Smith, 2002; Wolf, 1997; Wolf et al., 2005; Zepeda & Li, 2006).

The literature also suggests that consumers are willing to pay a premium for local products (Adams & Adams, 2008; Carpio & Isengildina-Massa, 2008; Giraud et al., 2005). This premium can vary depending on whether it is a high-value good or an animal product, like meat (Carpio & Isengildina-Massa, 2008; Giraud et al., 2005). Typically, the percent premium for a high-value or animal product is lower, but it is typically based upon a higher price point, resulting in a higher total dollar premium.

However, discrepancies in the literature exist. For example, some studies have identified local food buyers as being older, having lower education levels, and having lower household incomes (Adams & Adams, 2008; Bimbo et al., 2021; Carpio & Isengildina-Massa, 2008; Eastwood et al., 1987, 1999; Giraud et al., 2005; Govindasamy et al., 1998; Jekanowski et al., 2000; Kuches et al., 2000; Wolf, 1997; Zepeda & Li, 2006).

In addition to demographic and motivational characteristics, past research indicates that consumer lifestyle factors positively affect local food purchases. These lifestyle factors include growing up on a farm, working in agriculture, growing one's own food, enjoying cooking, and living in the western U.S. (Bavorova et al., 2016; Brown, 2003; Carpio & Isengildina-Massa, 2008; Cranfield et al., 2012; Kemp et al., 2010; Wolf et al., 2005; Zepeda & Li, 2006).

Local Meat Consumers and General Meat Consumption Trends

The literature shows that local meat consumers have traits similar to those of local food consumers: younger, female, white, higher educational attainment, and higher household income (Adu-Gyamfi et al., 2016; Curtis, 2014; Knight et al., 2006; Makweya & Oluwatayo, 2019; Sri Lestari et al., 2016; Stutzman, 2020; Tackie et al., 2017, 2018; Umberger et al., 2009; Verbeke et al., 2013; Xue et al., 2010).

In this literature, the effects of household size on local meat consumption are mixed, with Xue et al. (2010) and Makweya and Oluwatayo (2019) emphasizing purchasing differences between smaller and larger household sizes. Like with local foods, as food expenditures as a percentage of the household budget rise, the consumer is less likely to buy local meat.

Finally, meat consumption varies by race, household income, and gender (USDA ERS, 2017). Specifically, meat consumption tends to decrease with the demographic traits of being female, white, and having higher education and household income levels. Ironically, these are the demographics observed of those more likely to be local meat purchasers.

Consumer Willingness to Pay for Local Meats

There have been numerous studies on willingness

to pay for local beef, with premiums ranging from 10% to 58% (Agabriel et al., 2014; Curtis et al., 2012; Grannis et al., 2000; Loureiro & Umberger, 2003), with many values in between: 11% to 24% (Umberger et al., 2003), 20% to 24% (Thilmany et al., 2003), 49% to 54% (Dobbs et al., 2016), and 16.4% (Makweya & Oluwatayo, 2019). For the studies cited above, beef is usually divided into steak and hamburger, with steak having a lower percentage premium. Generally, past studies show that premiums for beef are higher than those for other local meats.

Willingness-to-pay studies for other local meats show that local pork premiums range from 0% (Byrd et al., 2018) to 22.5% (Picardy et al., 2020), with values within this range of 6.6% to 12.9% (Sanders et al., 2007), 11% to 15% (Curtis, 2014), and 10% (Curtis et al., 2012). The few local lamb and goat studies that exist report that consumers are willing to pay 11% to 15% more for local lamb (Curtis, 2014; Gracia, 2014; Gracia & de-Magistris, 2016), with studies on local goat meat reporting a willingness to pay a small premium, in cents per pound (Tackie et al., 2015, 2017, 2018).

Research Objectives and Significance

Outside of research from Carpio and Isengildina-Massa (2008), little is known about South Carolina's local meat consumers, where they buy and consume local meat, how much they are willing to pay, and what local meat attributes matter most to them. The research objectives for this study are to shed more light on these factors and determine which are most important for encouraging increased purchases of local meat for consumption at home and restaurants. Additional information is also sought about the size of the freezer meat market in South Carolina, as preliminary research has shown that this is an important marketing channel (Richards, 2020a).

The significance of this study is that it adds to the literature concerning the consumption of local foods and meats and is one of the few studies that disaggregates and examines the consumption of more than one type of local meat. More importantly, this study will give local meat producers additional information about their target customers and provide a basis for future marketing strategies.

Applied Research Methods

Data Collection and Summary Statistics

Data for this study were obtained from an online survey of South Carolina consumers conducted from October through November 2020. Qualtrics, an online survey platform, was used to administer the survey. The questionnaire consisted of screening questions, general questions about consumers' lifestyle characteristics and local meat preferences, and a sociodemographic section. The screening questions qualified respondents who ate meat, were over 18 years of age, were residents of South Carolina, and made household food-purchasing decisions. Respondents were further separated into local meat consumers and nonconsumers by asking if they had eaten local meat products within the last 12 months. Since consumers may have different definitions of what "local" includes, local meats were defined as meat products farm-raised in South Carolina (or within 200 miles of their residence). Nonlocal meats were defined as those meat products found at most food retailers that are not labeled as local.

The study collected 1,048 survey responses, with 741 respondents who had consumed local meat within the last 12 months and 307 who had not. Qualtrics recruited respondents from representative consumer panels in South Carolina. Additional screening excluded responses deemed too rapid based on the average time the survey takes to answer (thus removing "professional survey takers" from the sample).

Table 1 shows that the demographics of the survey sample differed slightly from the general demographics of South Carolina and the United States, likely due to the screening questions and the factors discussed in the following two paragraphs. Survey participants tended to be younger, more likely to be female, and have higher educational attainment. Respondent household income and household size were somewhat consistent with those found in South Carolina and the U.S., except that single households and those in the highest and lowest household income ranges were represented less frequently. Respondent race and ethnicity show that non-whites (Black/African American and other ethnicities) are represented at a higher

Table 1. Demographics of Sample versus U.S. and South Carolina Populations

	Sample	U.S.	S.C.
Age			
18 to 25 years of age	11.5%	1.5%	1.4%
26 to 34 years of age	17.7%	6.9%	5.7%
35 to 54 years of age	39.2%	29.6%	29.6%
55 to 64 years of age	17.2%	28.1%	27.4%
65 years and older	14.4%	33.9%	35.9%
Gender			
Male	34.1%	49.5%	51.5%
Female	65.9%	50.5%	48.5%
Highest Level of Education Completed			
High School or Less	23%	37.3%	43.5%
Some College or Associate Degree	35%	27.0%	30.1%
Bachelor's Degree	26%	9.8%	16.9%
Advanced Degree	16%	3.3%	9.5%
Household Income (self-reported)			
Less than $29,999	23.6%	21.1%	32.4%
$30,000 to $49,999	22.6%	16.0%	20.3%
$50,000 to $74,999	21.0%	16.5%	18.2%
$75,000 to $99,999	13.9%	12.3%	11.5%
$100,000 to $149,999	12.2%	15.5%	11.0%
$150,000 or greater	6.7%	18.5%	6.7%
Size of Household			
Only me	15.1%	28.2%	34.3%
Two people	35.7%	34.8%	34.4%
Three people	20.0%	15.1%	13.3%
Four people	18.2%	12.7%	10.2%
Five or more people	11.0%	9.3%	7.8%
Race			
White	74.2%	76.5%	68.5%
Black/African American	18.6%	13.4%	27.1%
Other	7.2%	10.1%	4.4%

Source: U.S. Census, 2020.

rate than the U.S. population, yet lower than the population demographics found in South Carolina.

The higher incidence of female respondents is most likely due to the screening question concerning the authority to make household food purchasing decisions. Also, the female respondent rate is typically higher in online surveys (Mulder & de Bruijne, 2019; Smith, 2008). A bias toward the younger and more highly educated also occurs in online surveys, as these respondents tend to have higher internet speeds and frequently access the internet (Bethlehem, 2010).

Results

Consumers versus Nonconsumers

Table 2 compares the demographic traits of local meat consumers to nonconsumers. Using Welch's t-test to compare the means of the two groups shows that local meat consumers may differ from nonconsumers concerning age, education, household income, and household size.

These differences suggest that the local meat consumer may be younger, have higher education and household income, and reside in households with more people. Gender, race, and length of time living in South Carolina were shown not to be significantly different, according to the t-test.

Local Meat Preferences and Desired Traits

Local meat consumers (*n*=741) were asked what types of meats they consume and what percent were sourced locally. Beef was the most popular meat consumed. However, more chicken, turkey, lamb, and goat were sourced locally (Figure 1).

Local meat consumers were asked what traits they valued the most when buying local meats. The responses show that the most popular traits (ranked) were no growth hormones/no hormones added, all natural, no antibiotics, humanely raised, and free range. Knowing the farmer who raised the animal, organic certification, and pasture-raised were the least important. Regarding the safety of local meats,

most consumers were either not con-
cerned or had little concern about
food safety (62.8%).

Factors Encouraging More Local Meat Consumption

Local meat consumers were asked
where they consumed local meats.
Most consumers ate local meats at
home (83.8%), followed by restaurants
(51.1%) and cookouts such as hog
roasts (24%). If the respondent did
not eat local meats at home, they were
asked if they were willing to consider
this option, and if they answered
affirmatively, they were considered a
potential consumer (P). Both current
at-home consumers (C) and potential
(P) at-home consumers were asked
what factors would encourage them to
purchase more local meats.

Comparing the two groups for
home consumption shows that the
factors encouraging current at-home
consumers for the most part are the
same as those that would encourage
potential at-home consumers (Table
3). Lower prices for local meat prod-
ucts was the top encouraging factor,
followed by a trusted local supplier
and more local meat products availa-
bility. The highlighted differences
between the two groups show that
presampling products, finding a
trusted local supplier, obtaining pro-
ducer food safety assurances, seeing
the products before purchasing, and
receiving preparation advice were
more important to those not currently
consuming local meats.

Factors influencing current
consumers to purchase more local
meats at restaurants (Table 3) are also
related to availability and price: lower
prices on menus, more restaurants
serving local meats, and increased
menu offerings. Potential consumers
had similar responses, yet seemed to

Table 2. Demographics of Local Meat Consumers (*n*=741) and Nonconsumers (*n*=307)

	Consume (Yes)	Consume (No)	t-test
Age			
Under 25	12.0%	10.1%	
25 to 34 years of age	19.3%	14.0%	
35 to 44 years of age	25.1%	20.2%	
45 to 54 years of age	14.7%	17.6%	***
55 to 64 years of age	16.3%	19.2%	
65 to 74 years of age	10.5%	14.7%	
75 years or older	2.0%	4.2%	
Gender			
Male	35.0%	31.9%	NS
Female	65.0%	68.1%	
Highest Level of Education Completed			
High School or Less	21.6%	26.7%	
Some College or Associate Degree	35.0%	36.8%	
Bachelor's Degree	26.7%	23.5%	**
Advanced Degree	16.7%	13.0%	
Household Income (self-reported; US$)			
Less than $29,999	20.6%	30.6%	
$30,000 to $49,999	23.1%	21.5%	
$50,000 to $74,999	21.1%	20.8%	***
$75,000 to $99,999	14.2%	13.4%	
$100,000 to $149,999	13.5%	9.1%	
$150,000 or greater	7.6%	4.6%	
Size of Household			
Only me	14.0%	17.6%	
Two people	35.5%	36.2%	
Three people	20.0%	20.2%	*
Four people	19.0%	16.3%	
Five or more people	11.5%	9.8%	
Race			
White	75.0%	72.3%	
Black/African American	17.8%	20.6%	NS
Other	7.2%	7.2%	
Length of Time Living in South Carolina			
0 to 4 years	10.1%	10.1%	
5 to 9 years	10.3%	11.1%	
10 to 14 years	8.0%	8.5%	NS
15 to 19 years	11.1%	12.4%	
20 to 24 years	9.6%	8.8%	
Over 25 years	50.1%	47.6%	

Significance codes: '***' 1% '**'5% '*'10%
'NS' Not Significant.

place more emphasis on local meat promotion and menu offerings than on price compared to current consumers.

Preferred Marketing Channels and the Role of Farmers Markets

Local meat consumers ranked where they would ideally prefer to purchase their meat products. The

Figure 1. Meat Consumption Frequency and Percent Sourced Locally
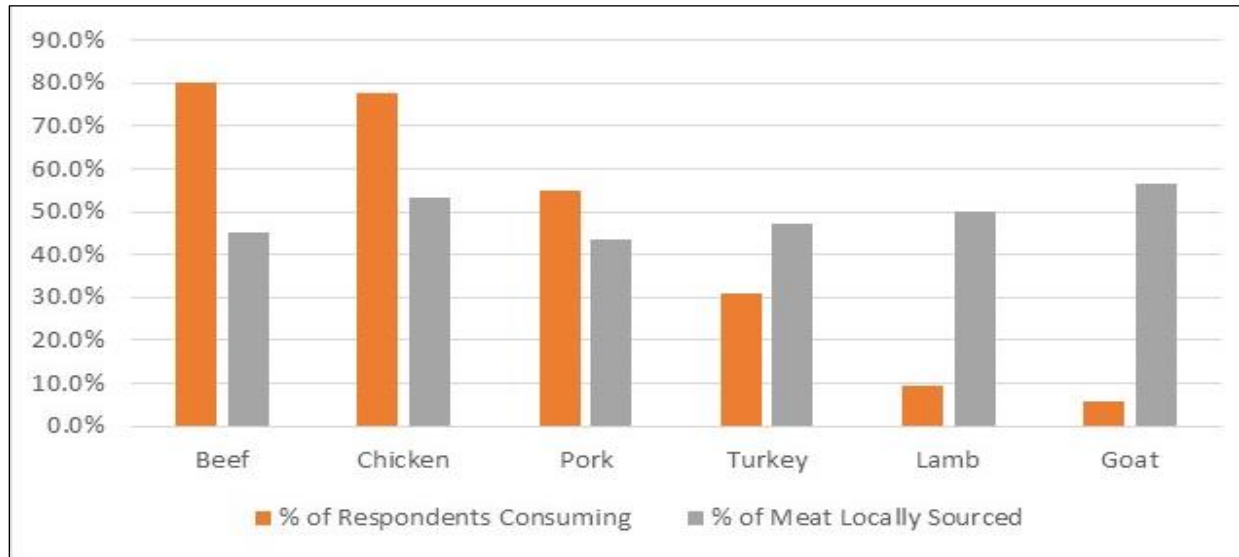
Table 3. Encouraging Local Meat Consumption at Home and Restaurants[a]

	Percent (C)	Percent (P)	Difference (C-P)
Factors Encouraging More Purchases at Home (C, *n*=621) and Those Willing to Try (P, *n*=114)			
Lower prices for local meat products	60.9%	57.9%	3.0%
A trusted local supplier of quality meat products	46.5%	52.6%	-6.1%
More availability of local meat products	31.7%	32.5%	-0.7%
Food safety assurances from the producer	25.8%	31.6%	-5.8%
Being able to purchase local meat that is not frozen	22.5%	25.4%	-2.9%
Better meat cuts and portion sizes	21.3%	24.6%	-3.3%
The ability to see the products before purchasing	20.0%	25.4%	-5.5%
Ideas or recipes on how to prepare local meats	14.7%	19.3%	-4.6%
Better packaging of local meat products	11.4%	12.3%	-0.8%
Being able to sample the meat before buying	10.6%	18.4%	-7.8%
More availability of precooked products	8.2%	8.8%	-0.6%
Factors Encouraging More Purchases at Restaurants (C, *n*=732) and Those Willing to Try (P, *n*=307)			
More restaurants serving local meats	45.4%	52.4%	-7.1%
Lower prices for local meat menu items	50.4%	42.7%	7.7%
Increased offerings of local meats on menus	42.3%	39.9%	2.4%
More promotion of local meats	26.9%	34.7%	-7.8%
Increased variety of local meat offerings on menus	31.1%	30.2%	0.9%

[a] (C)=Current consumer, (P)=Potential consumer

grocery store was the top response, followed by buying at the farm, farmers markets, butcher shop, and ordering online. When asked how far they would be willing to travel to purchase local meat, most (83.2%) were unwilling to drive more than 20 miles.

Most respondents (83%) had a farmers market in their area, and 77.2% replied that they shopped at their farmers market. Of those who shopped at farmers markets, 82% replied that they shopped at the market two times or fewer per month, with 54.3% shopping one time or fewer per month. Those who shopped at farmers markets (*n*=440) were asked to rank the attributes of their local market from best to worst. Product quality was ranked first, followed by convenience, selection, and price.

The Custom-Exempt or Freezer Meat Trade
The importance of this marketing channel is that these local meats are usually sold in bulk and can be less expensive than buying local meats (or even nonlocal meats) as retail cuts (Nelson & Richards, 2021). The freezer meat trade typically refers to farmers having an animal butchered without an on-premises meat inspector under federal custom-exempt provisions. In South Carolina, it is estimated that 28.5% of livestock sold for meat is pro-

cessed under this exemption (Richards 2020a). Local meat consumers who purchased for home use (*n*=621) were asked what percent of their meat purchases were unlabeled or labeled "not for sale." One-fourth (25%) of survey respondents reported purchasing some meat products in this manner, which is consistent with the previously cited study. It is also important to note that this marketing channel may be responsible for some of the willingness-to-pay responses that include "should cost less" or "should cost the same" as nonlocal meats.

Willingness to Pay for Local Meats
Respondents who indicated that they purchased local meats were asked how much they were willing to pay for local meat products to eat at home and in restaurants. The responses were categorized by a percent premium for at-home consumption and a dollar premium per restaurant entrée. The reason for this categorization is that the researchers thought a dollar premium per entrée might be more intuitive for the respondents, as restaurant entrée prices reflect more than just the meat portion.

The results show that the most common response for home consumption was a 1% to 24% price premium over nonlocal products (Figure 2)

Figure 2. Response Frequencies for Willingness to Pay for Local Meat to Eat at Home
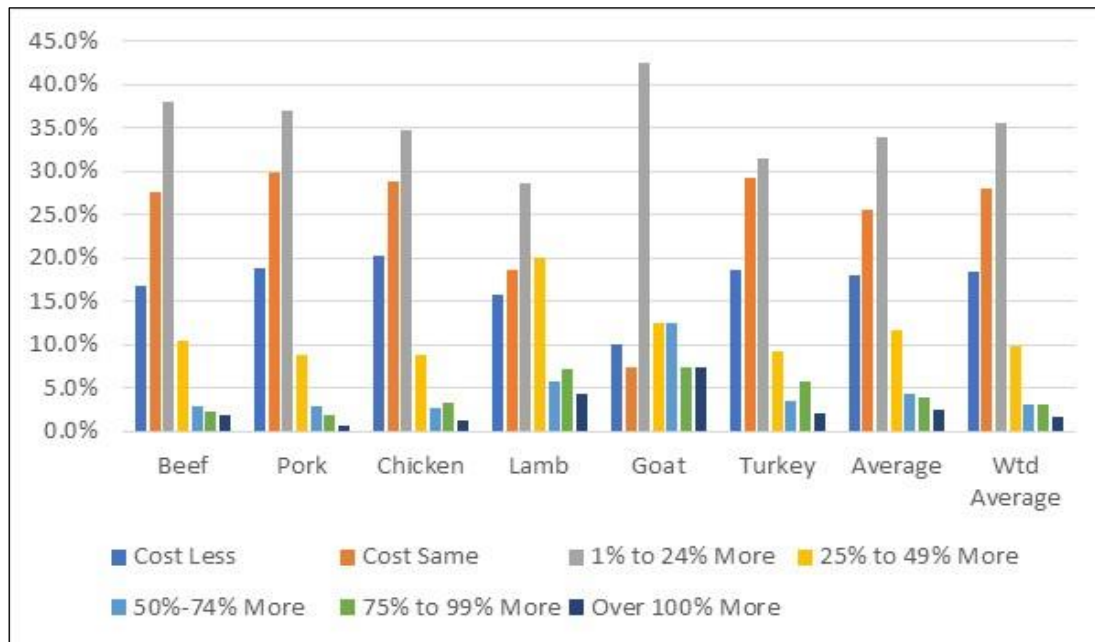
and no premium for local meats eaten at a restaurant, except for goat, which had a most common response of a $2.00 to $2.99 premium (Figure 3). Potential consumers were asked the same questions. The most common response was, "it should cost the same" when buying local beef, pork, chicken, or turkey to eat at home or a restaurant.

Three regression analyses were performed on the survey data set: binary logit regression (logistic),

multiple linear regression (MLR), and ordered logistic regression (OLR). Variable definitions are shown in Table 4, and complete regression results are in the Appendix.

Binomial Logit Regression: Local Meat Consumption
Respondents were asked if they consume or do not consume locally raised meats (yes/no response). Logistic regression was used to find the probability

Figure 3. Response Frequencies for Willingness to Pay for Local Meat at Restaurants Methodology
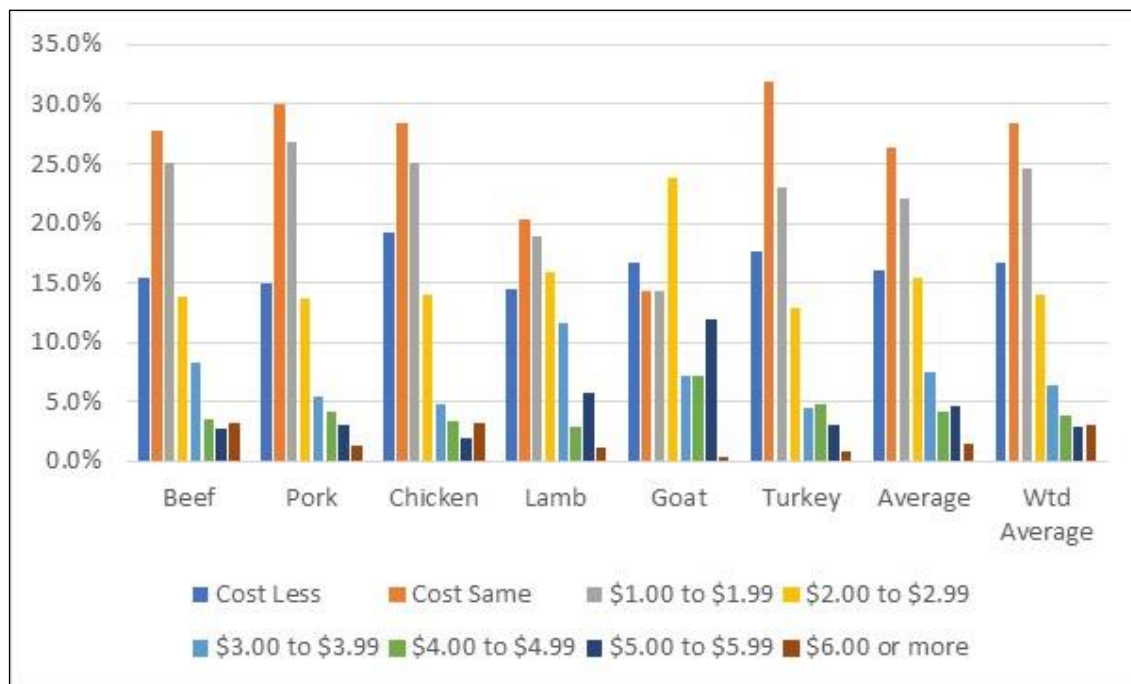
Table 4. Description of Variables in the Regression Models

Variable	Description	Response Categories, Base and Order Levels, and Intervals
Age	Age	(Base/0) Under 25, (1) 25 to 34, (2) 35 to 44, (3) 45 to 54, (4) 55 to 64, (5) 65 to 74, and (6) 75 years or older
Gender	Gender	(Base/0) Male and (1) Female
Ethnicity	Race or Ethnicity	(Base/0) Non-Caucasian, (1) White/Caucasian
Education	Educational Attainment	(Base/0) High school or less, (1) Some college, (2) Bachelor's degree, and (3) Advanced degree
HHIncome	Household Income	(Base/0) Less than $29,999, (1) $30,000 to $49,999, (2) $50,000 to $74,999, (3) $75,000 to $99,999, (4) $100,000 to $149,999, and (5) $150,000 and greater
HHSize	Household Size	(Base/0) Only me, (1) Two people, (2) Three people, (3) Four people, and (4) Five or more people
Tenure	Years Living in South Carolina	(Base/0) 0 to 4 years, (1) 5 to 9 years, (2) 10 to 14 years, (3) 15 to 19 years, (4) 20 to 24 years, and (5) over 25 years

that a survey respondent will consume local meats. In addition, marginal effects can be calculated to show the average change in probability as the response variable changes by one unit.

Ordered Logit Regression: Willingness to Pay
Local meat consumers were asked questions about their willingness to pay for local meats at home and at restaurants. The response variables mentioned are good examples of ranked responses, which are better analyzed using an ordered logit regression model (Green, 2018).

Multiple Linear Regression: Consumption Frequency
Consumption frequency questions (what percent of local meat is consumed versus nonlocal meat) are better examples of a linear response, where responses can range from 1% to 100% and are of a more continuous nature. For these questions, multiple linear regression was used to analyze the data.

Statistical Analysis and Results
Binomial logit (logistic) regression results in Table 5 show that younger individuals and individuals with a higher household income are more likely to be local meat consumers. Marginal effects suggest that an increase in age (in 10-year increments) reduces the probability of consuming local meats by 3.62%, and an increase in household income increases the probability of consuming local meats by 3.05%.

Those who identified themselves as local meat consumers were then asked what percent of their total meat consumption was local relative to nonlocal. The respondents answered this question by moving a slide bar to the approximate percentage, so the response was more continuous than discrete. Multilinear regression results shown in Table 6 suggest that variables significant for local beef consumption frequency were Ethnicity (non-white), Gender (male), larger Household Size, and longer length of time living in South Carolina (Tenure). Local pork consumption frequency had significant variables of Ethnicity (non-white), Gender (male), Household Income (lower), and Tenure (longer-term residents). Variables significant for increased local chicken consumption were Gender (male), Household Income (lower), and Tenure

(longer). Frequent local turkey consumers were more likely to be male, have higher education, have larger household sizes, and have lower household incomes. Increased local lamb and goat consumption was related to being male and having higher educational attainment, with increased goat consumption also having significant variables of Household Size (larger) and Household Income (lower).

Ordered logit regression results for willingness to pay for local meats to be eaten at home are shown in Table 6, third column. Consumers willing to pay more for local beef at home were more likely to be younger, female, have higher educational attainment, and have higher household income. Variables associated with consumers willing to pay more for local pork were Age (younger), Education (higher), and Household Income (higher). Local chicken consumers were more likely to pay more if they were female, younger, had higher education and household income, and had a

Table 5. Logistic Regression Results: Consume(Y) vs Consume(N)

	Consumers	Marginal Effects
(Intercept)	0.87	
	(0.44)	
Gender	-0.09	-0.0179
	(0.15)	
Age	-0.18 ***	-0.0362
	(0.05)	
Ethnicity	0.07	0.0133
	(0.16)	
Education	0.08	0.0169
	-0.08	
HHSize	-0.02	-0.0048
	-0.06	
HHIncome	0.15 **	0.0305
	-0.05	
Tenure	0.05	0.0097
	-0.04	
N	1048	
AIC	1252.57	
BIC	1292.21	
Pseudo R2	0.04	

*** p < 0.001; ** p < 0.01; * p < 0.05; ^ p < 0.1

smaller household size. Higher education levels were associated with a willingness to pay more for local turkey and lamb, with turkey consumers more likely to be younger and lamb consumers more likely to be male. No significant variables were associated with a higher willingness to pay for local goat meat.

Significant variables associated with local meat consumers willing to pay more for local meats eaten at restaurants are shown in Table 6, fourth column. Restaurant consumers willing to pay more for local beef were more likely female. Variables associated with a willingness to pay more for local pork at restaurants were Age (younger) and Tenure

(shorter). A significant variable for local chicken was Age (younger); willingness to pay more for local turkey showed significance for Education (higher); and willingness to pay more for local goat meat was significant for males.

Discussion

Demographics of the Local Meat Consumer

The South Carolina local meat consumer has many similarities to the local food consumer and local meat consumer profiled in the literature review. Welch's t-test showed that South Carolina local meat consumers tended to be younger, have higher educational attainment and household income, and have larger household sizes. Logistic regression reinforced the findings that younger individuals with higher household incomes were more likely to be consumers of local meats. Separating the meat types with multilinear and ordered logit regression teased out additional significant demographic variables concerning willingness to pay for local meats at home and at restaurants, notably Gender, Ethnicity, Education, and length of time living in South Carolina (Tenure).

As for Gender, Table 6, column two reveals that male gender was a significant predictor of the consumption frequency of all local meats. This finding makes sense compared to general meat consumption, where U.S. females consume 33% to 42% less meat than males (Lin et al., 2016). For home consumption, females were more willing to pay for local beef and chicken, while males were more willing to pay for

Table 6. Regressions for Consumption Frequency and Willingness to Pay

Analysis	Consumption	WTP Home	WTP Restaurant
Meat Type	Frequency (MLR)	Ordered Logit	Ordered Logit
	Gender (M)***	Gender(F)*	
Beef	HHSize(+)*	Age(-)***	Gender(F)*
	Ethnicity(NC)*	Education (+)**	
	Tenure(+)**	HHIncome (+)^	
	Gender (M)***		
	Ethnicity(NC)*	Age(-)***	Age(-)*
Pork	HHIncome(-)*	Education(+)^	Tenure (-)*
	Tenure(+)*	HHIncome (+)^	
	Gender (M)**	Gender(F)^	
Chicken	HHIncome(-)^	Age (-)***	Age(-)^
	Tenure (+)**	Education(+)**	
		HHSize (-)^	
		HHIncome (+)^	
	Gender (M)**		
Turkey	Education(+)*	Age (-)**	Education (+)*
	HHSize (+)*	Education(+)^	
	HHIncome (-)*		
	Gender (M)^	Gender (M)*	
Lamb	Education (+)*	Education (+)^	NS
	Gender (M)*		
Goat	Education(+)**	NS	Gender(M)***
	HHSize (+)*		HHIncome(+)*
	HHIncome (-)*		

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; ^ $p <0.10$, NS = Not Significant ($p >0,10$)
Abbreviations: MLR = Multilinear Regression, WTP=Willingness to Pay
(+/-) Sign of coefficient, Rest=Restaurant, M=Male, F=Female, NC=Non-Caucasian

local lamb. However, in restaurants, females were more likely to pay more for local beef, and males were more likely to pay more for local goat.

Ethnicity (non-white) was a significant predictor of beef and pork consumption frequency. This finding is consistent with general U.S. meat consumption trends for non-whites eating more pork per capita but not consistent with current beef consumption per capita by population demographic. However, consumption trends before 2003 show that pork and beef consumption frequency was higher among non-whites (USDA ERS, 2017).

Higher education levels were significant concerning local turkey, goat, and lamb consumption frequency. These frequency results appear contrary to general U.S. meat consumption trends, as overall meat consumption tends to decrease with education levels. However, turkey and chicken consumption rise with education levels (USDA ERS, 2017). Higher education level was a significant predictor of willingness to pay more for all meats for home consumption, except for goat. Education level was also significant in predicting willingness to pay more for local turkey eaten at a restaurant.

In many of our regression results, age was a significant variable (with a younger age corresponding to a greater frequency of meat consumption and higher willingness to pay for most meat products). This result agrees with the literature on local food consumption and research showing that meat consumption generally decreases as age increases (Neff et al., 2018).

Higher household income was related to a higher willingness to pay for local beef, pork, and chicken to eat at home. However, lower household income corresponded to more frequent consumption of local pork, chicken, turkey, and goat. An explanation could be that this subset of individuals has lower household income than the typical local meat consumer (who tends to have a higher income than a nonlocal meat consumer), as non-consumers were already separated from this dataset. Another reason could be that these meats are less expensive than beef. Finally, some consumers may buy bulk freezer meat (custom-exempt) at a lower price than retail cuts.

Finally, larger household size was significant for increased local beef, turkey, and goat consumption frequency. This result is consistent with the literature, which finds that households with married individuals (Bavorova et al., 2016; Kuches et al., 2000; Wolf, 1997) and children (Butu et al., 2020; Curtis, 2014) were more likely to buy local products than those that are single (Xue et al., 2010; Makweya & Oluwatayo, 2019). Yet smaller household size was significant for those willing to pay more for local chicken eaten at home. An explanation for this observation may be that smaller households elect to buy smaller meat portions to feed fewer individuals.

An important observation to make when reviewing this study is that the demographic regression results generally align with general meat consumption trends (USDA ERS, 2017). As previously mentioned, general meat consumption varies by race, household income, and gender. Specifically, meat consumption at home decreases with demographic traits associated with being female, white, and having higher education and household income levels. Ironically, these are the demographics observed of those more likely to pay more for local meats to eat at home. These consumers eat meat, yet consume less meat, than those in different demographic groups. In terms of marketing efforts, these results also highlight that the person doing the shopping may be different from the person consuming: females were more likely to be the food-purchasing decision-maker in the household, with 66% of survey respondents being female. Yet males generally consume more meat (USDA ERS, 2017) and are shown to eat all local meats at a higher frequency (Table 6, second column).

On the flip side, this demographic group tends to eat more meat away from home (except for beef) than other demographic groups (USDA ERS, 2017), perhaps representing a marketing opportunity for local meat producers. The size of this marketing opportunity could be significant. It is not known how much local meat is distributed through restaurants, but it is expected to be a small amount. Restaurant consumers do not influence the raw ingredients the chef or owner buys. Unsurprisingly, over 50% of respondents said more restaurants needed to serve local meats. Even non-consumers mentioned that more local meat

promotions and increased menu offerings would encourage their consumption.

Challenges and Opportunities for Marketing Local Meats

The results of this study show that sales of local meats may be limited by price (willingness to pay), a lack of local meat availability, and inconvenience. Alternatively, local meat sales may be increased through greater access to more sales outlets, highlighting the local meat attributes most valued by consumers, and following best marketing practices.

Willingness to Pay and Price

Current, potential, and nonconsumers in the study ranked price as the top barrier to purchasing or purchasing more local meat. Price was also ranked the least desirable of farmers market attributes. Price is a common barrier to purchasing local foods and local meats (Barska & Wojciechowska-Solis, 2020; Chambers et al., 2007; Eastwood, 1996; Gwin & Lev, 2011; Knight et al., 2006; McEachern et al., 2010; Megicks et al., 2012).

Price is a marketing challenge for South Carolina meat producers. Figure 2 illustrates that almost half (46.4%) of consumers thought local meat should cost the same or less than nonlocal offerings, with 35.6% willing to pay between a 1% and 24% premium. Past willingness-to-pay studies in the literature review report that local meat premiums are generally in the 1% to 24% range. This 1% to 24% premium may not represent a sustainable price for producers seeking to sell their meat via retail channels. For instance, local beef costs at least 25% more (Richards, 2020b), and only 18% of survey respondents replied that they would be willing to pay this premium. And, as stated earlier, willingness to pay for local meat products may be dampened by the freezer meat trade. In addition, there is the question of the ability to pay more for local meats, even if specific populations desire them. The literature points out that as the percentage of the household budget spent on food rises, the amount spent on local foods tends to decrease.

Studies specific to southeastern U.S. states show similar results for a lower-than-expected willingness to pay for local beef and goat in Georgia, Alabama, and Florida (Tackie et al., 2015, 2017,

2018). This may be partly due to the Southeast having the lowest average household income in the U.S. (U.S. Census Bureau, 2022). However, in contrast, two Tennessee beef studies reported consumers' willingness-to-pay premiums as higher than the 1% to 24% range (Dobbs et al., 2016; Merritt et al., 2018).

Availability and Sales Outlets

Table 3 points out that the availability of local meats is a critical issue in South Carolina (i.e., needing "a trusted local supplier" and desiring "more availability of local meat products" are the top influencing factors identified by survey respondents). The literature agrees that this is an issue, with past surveys revealing a need for more retail outlets for local foods (Megicks et al., 2012). Furthermore, buying locally involves a time commitment to seek out local products (McEachern et al., 2010; Shi & Hodges, 2016).

The farmers market is one of the most common retail outlets for local products. The number of farmers markets has been growing in the U.S. for the past two decades but have issues of inconvenient locations, limited operation hours, and a lack of variety (Andreatta & Wickliffe, 2002; Archambault et al., 2020; Eastwood 1996; Eastwood et al., 1999; Govindasamy et al., 1998; Kemp et al., 2010; Shi & Hodges, 2016). These same issues were seen in this study, with more than 83% of respondents not willing to travel more than 20 miles to buy local meat and 54.3% visiting their farmers market only once per month or less. Shi and Hodges (2016) found that consumers' willingness to travel was even shorter, with consumers being more likely to shop at a farmers market if it were located within 5 kilometers (3.1 miles) of their residence. Moreover, Eastwood (1996) found that most farm market shoppers visited the market less than 10 times per year, consistent with this study's findings. Comparing this to grocery store shopping, most shoppers (87%) visit the grocery store close to three (2.8) times per week or 12 times per month (Ver Ploeg et al., 2017), which is 12 times more frequent than most shoppers visit farmers markets in this survey.

These results underscore findings in the literature that most local food consumers do not buy all

their groceries from local sources and continue to buy most of their food from grocery stores (Cicatiello, 2020; McKee, 2021; Megicks et al., 2012; Onozaka et al., 2010). This fact is also represented in the results of this survey, where the percentage of local versus nonlocal meat purchases averaged 48.4%, which is in line with Cicatiello's (2020) estimate of 40% to 50%. Farmers markets, however, are a great way to educate consumers and drive new sales, as the interactions between the farmer and consumer are critical in changing buying behavior and establishing trust (Andreatta & Wickliffe, 2002; Carson et al., 2016; Onozaka et al., 2010; Perret & Jackson, 2018).

While survey respondents ranked the grocery store as the most convenient choice, this may be the most challenging channel to penetrate due to the time it takes these stores to procure local products (Local Organic Y'all, 2016). If a producer or a producer group has enough volume and can meet wholesale price points, grocery store placements could be considered.

Buying at the farm may have limited success, as studies have shown that urban consumers are less likely to drive to farms to buy products (Bavorova et al., 2016; Gandee et al., 2003; Shi & Hodges, 2016). Producers may consider offering curbside or front-porch delivery to urban consumers if logistically and financially viable. Also, producers may entice consumers to their farms in other ways, such as agritourism activities.

Butcher shops and online ordering were other options respondents selected in the survey. The latter's convenience has expedited the decline of the former. Consumers in the U.S. have been shopping for their groceries in supermarkets for over 100 years (Ross, 2016), as convenience and cost savings consolidated products and services that had previously been sold by individual vendors (like meat from a butcher's shop) under one roof (Macfadyen, 1985). Butcher shops have undergone a renaissance and are starting to appear in upscale neighborhoods, although they are few. The entire state of South Carolina, for example, has 18 butcher shops that are not part of a chain or inside a supermarket (Google, 2021). However, these retailers might be looking for specialty meats they cannot find through wholesale distributors, such as local goat

meat (Richards, 2021).

Interestingly, respondents ranked ordering online as the least preferred method to buy meat, although this has been the fastest-growing food purchasing channel since the outbreak of the COVID-19 pandemic (Redman, 2020). Furthermore, there is an established marketplace for mail-ordered meats with brands such as Omaha Steaks, which has shipped meats through the mail since 1953 (Omaha Steaks, n.d.). The total market share of mail-ordered meat is 3.2% of total meat sales (FMI & Foundation for Meat & Poultry Education & Research, 2020). Still, the Meat Industry's *Power of Meat 2020* report shows that the number of consumers trying online meat ordering doubled from 19% to 38% during the pandemic. However, 52% of shoppers said they would return to their pre-pandemic shopping habits (FMI & Foundation for Meat & Poultry Education & Research, 2020; Redman, 2020), similar to results found in South Carolina, where 48.7% of shoppers planned to return to their prepandemic purchasing channels (Richards & Vassalos, 2021).

Convenience and Ease of Preparation
Most local meat is sold frozen, an inconvenience for preparation to many shoppers (Gwin & Lev, 2011), and it may be perceived as not fresh, reducing sales compared with fresh products (Cranfield et al., 2012). Preparation knowledge is also essential in the purchasing decision, as evidenced by the studies citing product knowledge, consumption frequency, and enjoyment of cooking as being associated with higher local food purchases (Brown, 2003; Cranfield et al., 2012; Tait et al., 2018; Tregear & Ness, 2005; Wolf et al., 2005; Xue et al., 2010; Zepeda & Li, 2006).

Producers may wish to explore methods of merchandising their meat products in a nonfrozen state and including ice packs and insulated bags as part of the purchase price. Thawing the meat for display may increase waste through spoilage. However, fresh meat wrapped in a foam tray (i.e., case-ready meats) can last 3 to 7 days under refrigeration (Delmore, n.d.) and is the most widely accepted form of buying meat (FMI & Foundation for Meat & Poultry Education & Research, 2020). This thawed meat may also be

used for samples to drive sales further.

One positive outcome of the COVID-19 pandemic is that it encouraged consumers to cook more meals at home (Lin, 2020). This experimentation with cooking at home was part of the general meat sales increase of 34.6% in 2020 (FMI & Foundation for Meat & Poultry Education & Research, 2020). These new food experimenters are typically younger, 25 to 45 (FMI & Foundation for Meat & Poultry Education & Research, 2020), as older individuals tend to be less interested in cooking new foods (Meneely et al., 2009). Producers would be best served to have recipe cards and other promotional materials to accompany their products, which have been shown to drive sales (Hinson & Bruchhaus, 2005; Knight et al., 2006; Staisey & Harris, 2019). Survey respondents also mentioned these items as things that would encourage additional purchases.

Highlighting the Most Desirable Meat Attributes
Respondents ranked no growth hormones/no hormones added, all-natural, no antibiotics, humanely raised, and free range as the most desirable local meat attributes. Knowing the farmer who raised the animal, organic certification, and pasture-raised were the least important. The desired traits ranked by survey respondents are consistent with the literature, where no hormones are frequently mentioned as an essential attribute (Grannis et al., 2000; Merritt et al., 2018; Picardy et al., 2020; Tait et al., 2018). Hwang, Roe, and Tiesl (2005) also found this trait to be the most important after no pesticides, which are not used on animals. "No antibiotics" is the second-most important attribute, followed by grass-fed, how the animal was raised, animal welfare, access to pasture, knowing the farmer, and being environmentally sustainable (Grannis et al., 2000; Hwang et al., 2005; McMullen, 2006; Picardy et al., 2020; Tait et al., 2018).

Certified country of origin, state, and local labeling are also the subject of many willingness-to-pay studies and show positive relationships with the willingness to pay in all literature reviewed (Adalja et al., 2015; Agabriel et al., 2014; Chang et al., 2013; Lim et al., 2013; Loureiro & Umberger, 2003, 2007; McMullen, 2006; Merritt et al., 2018;

Stutzman, 2020; Umberger et al., 2003). In some cases, the local label was valued more than or equally with other attributes (Adalja et al., 2015; McMullen, 2006; Tait et al., 2018). Some labeling designations, such as all-natural and organic, are certified by third parties and imply other characteristics like hormone-free and no antibiotics. Finally, some local meat attributes, such as food safety, quality, and humane treatment, may be treated as a given or as part of the locally raised attribute.

Advertising and labeling also abide by the law of diminishing returns, where each additional labeling claim takes away from a clear promotional strategy (Hallaron Advertising Agency, n.d.; Ingredion Inc., 2019). The results from this survey and the literature review point to having two to three attributes on the label. Food safety, meat quality, and humane treatment may not need to be on the label if they are assumed to be local attributes. If a producer is certified organic or all-natural, that should be part of the packaging; otherwise, no hormones and no antibiotics appear to be the most important to current or potential consumers, followed by a local certification of some sort, such as Certified South Carolina Grown. Environmental concerns are significant to consumers, but past surveys have found that this is more of a talking point than an actual reason for purchase, and some have observed that environmentally friendly claims rank last in terms of willingness to pay (Grannis et al., 2000; Kemp et al., 2010; Megicks et al., 2012; Tait et al., 2018). It could be that a product being local equates to being environmentally friendly in many consumers' minds. In any case, environmental friendliness is low on the list for inclusion on the label.

Other Marketing Best Practices
In addition to the items previously discussed, other factors encourage local meat purchases: the consumer seeing the products and being able to sample the products before purchasing, and the supplier coming to be trusted to supply local meat.

Most meat products in South Carolina are sold while frozen and are not displayed for the consumer to view. Eye-catching displays have been shown to increase sales and interest (Hinson & Bruchhaus, 2005; Knight et al., 2006). Producers

should consider investing in small display cases to hold the meat between 32°F and 38°F. If this is not possible, producers could display pictures of the products, which may increase sales by up to 26% (Staisey & Harris, 2019). Sampling is another option to reduce purchasing barriers, and Staisey and Harris (2019) found that this could raise sales by 15% to 30%.

Becoming a trusted local meat supplier involves personal interaction with consumers. Studies have shown that this interaction builds trust and helps change buying behavior in favor of purchasing more local products (Andreatta & Wickliffe, 2002, Carson, 2016; Onozaka et al., 2010; Perret & Jackson, 2018). The point of sale is a good time for the producer to introduce themselves and explain how buying locally helps farmers, which is essential to some consumers, especially those living in urban areas (Bavorova et al., 2016; Skallerud & Wien, 2019). Also, shoppers' motivations differ depending on what market outlet they shop at and the types of products they seek (Bean & Sharp, 2011; Onozaka & Thilmany McFadden, 2011; Thilmany et al., 2006). Frequent interaction with purchasers can give producers clues as to what sells best at what location. In addition, attributes not shown on the label can be described to the consumer in person. Finally, producers should judge how much product information they present during a sale, as some male consumers may be discouraged from buying based on their perceptions of current social trends, especially if they believe these trends are politically motivated (Gracia et al., 2012).

Conclusions, Limitations, and Further Research

South Carolina has substantially increased its local meat production since 2019 in response to increased consumer demand. However, local meat producers need to know more about the characteristics of local meat consumers: their demographics, preferences, and willingness to pay for and consume local meats. This study is an effort to cover this gap in the literature. To the best of our knowledge, this is the first study researching this topic in the South Carolina marketing area.

The findings of this study suggest that local meat consumers tend to be younger, reside in larger households, have higher household incomes, have greater educational attainment, and be long-term residents of South Carolina. Generally, these consumers are willing to pay a 1% to 24% premium for local meats to be eaten at home and $1.00 to $1.99 more per entrée for local meats at a restaurant. Factors associated with a willingness to pay more for local meats are similar to those identified with local meat consumers, with variations between the types of meats analyzed in this study.

South Carolina livestock producers looking to market more locally raised meats may wish to highlight attributes identified by this study: hormone-free, all-natural, no antibiotics, and grass-fed. The most popular marketing channels ranked by consumers are grocery stores, directly from farms, farmers markets, butcher shops, and online ordering, with most consumers willing to drive up to 20 miles (32 km) to purchase local meat. Barriers to consumers' willingness to purchase (or purchase more) local meats include product unavailability, high prices, food safety concerns, inconvenience, and lack of ease of preparation. This study's limitations include sampling and sample size limitations that are common when researching niche markets in a small geographic area, especially concerning lesser-consumed meats such as lamb and goat. Other limitations include not surveying restaurants and grocery stores about opportunities, barriers, and preferences for buying locally raised meats. This study has shown that these marketing channels are essential to the final consumer, yet local meat producers rarely use these channels. More research on these channels would provide beneficial information for local meat marketing efforts. More research could be done to measure willingness to pay for each type of meat more precisely. Finally, consumers also have a knowledge gap in comparing local meats with national brands: specifically, how much it costs to raise, process, and sell these products. Filling this knowledge gap could help consumers understand the price differential between local meats and national branded meats.

References

Adalja, A., Hanson, J., Towe, C., & Tselepidakis, E. (2015). *An examination of consumer willingness to pay for local products*. *Agricultural and Resource Economics Review*, *44*(3), 253–274. https://hdl.handle.net/1813/72241

Adams, D. C., & Adams, A. E. (2008, July 27–29). *Availability, attitudes, and willingness to pay for local foods: Results of a preliminary survey* [Paper presentation]. 2008 Annual Meeting, American Agricultural Economics Association Annual Meeting, Orlando, Florida, United States. https://doi.org/10.22004/ag.econ.6237

Adu-Gyamfi, A., Omer, R. I., Bartlett, J. R., Tackie, D. N. O., Perry, B. J. (2016). Assessing Florida consumer attitudes and beliefs about locally or regionally produced livestock and products. *Professional Agricultural Workers Journal, 4*(1), Article 11. https://tuspubs.tuskegee.edu/pawj/vol4/iss1/11

Agabriel, J., Faure, B., Lebreton, F. X., Lherm, M., Micol, D., Garcia-Launay, F., Pradel, P., Angeon, V., & Martin, B. (2014). La race bovine Salers : un atout pour le développement de son territoire d'origine par son identité forte et des produits qualifiés [Salers: The potential of a local cattle breed to contribute to the development of its home territory through its image and identified products]. *Cahiers Agricultures*, *23*(2), 138–147. https://doi.org/10.1684/agr.2014.0687

Andreatta, S., & Wickliffe, W. (2002). Managing farmer and consumer expectations: A study of a North Carolina farmers market. *Human Organization, 61*(2), 167–176. https://doi.org/10.17730/humo.61.2.a4g01d6q8djj5lkb

Archambault, S. J., Trivette, S., Warsaw, P., & Morales, A. (2020). Vendor variety and market sales: A case study of the Williamsburg Farmers Market. *Journal of Agriculture, Food Systems, and Community Development, 9*(2), 221–237. https://doi.org/10.5304/jafscd.2020.092.012

Barska, A., & Wojciechowska-Solis, J. (2020). E-consumers and local food products: A perspective for developing online shopping for local goods in Poland. *Sustainability, 12*(12), Article 4958. https://doi.org/10.3390/su12124958

Bavorova, M., Unay-Gailhard, I., & Lehberger, M. (2016). Who buys from farmers' markets and farm shops: The case of Germany. *International Journal of Consumer Studies*, *40*(1), 107-114. https://doi.org/10.1111/ijcs.12220

Bean, M., & Sharp, J. S. (2011). Profiling alternative food system supporters: The personal and social basis of local and organic food support. *Renewable Agriculture and Food Systems*, *26*(3), 243-254. https://doi.org/10.1017/S1742170511000032

Bethlehem, J. (2010). Selection bias in web surveys. *International Statistical Review*, *78*(2), 161-188. https://doi.org/10.1111/j.1751-5823.2010.00112.x

Bianchi, C. (2017). Exploring urban consumers' attitudes and intentions to purchase local food in Chile. *Journal of Food Products Marketing*, *23*(5), 553-569. https://doi.org/10.1080/10454446.2015.1048021

Bimbo, F., Russo, C., Di Fonzo, A., & Nardone, G. (2021). Consumers' environmental responsibility and their purchase of local food: Evidence from a large-scale survey. *British Food Journali,* 123(5), 1853-1874. https://doi.org/10.1108/BFJ-05-2020-0398

Brown, C. (2003). Consumers' preferences for locally produced food: A study in southeast Missouri. *American Journal of Alternative Agriculture*, *18*(4), 213-224. https://doi.org/10.1079/AJAA200353

Byrd, E. S., Olynk Widmar, N. J., & Wilcox, M. D. (2018). Are consumers willing to pay for local chicken breasts and pork chops? *Journal of Food Products Marketing*, *24*(2), 235-248. https://doi.org/10.1080/10454446.2016.1266556

Butu, A., Brumă, I. S., Tanasă, L., Rodino, S., Vasiliu, C. D., Doboṣ, S., & Butu, M. (2020). The impact of COVID-19 crisis upon the consumer buying behavior of fresh vegetables directly from local producers. Case study: The quarantined area of Suceava County, Romania. *International Journal of Environmental Research and Public Health*, *17*(15), Article 5485. https://doi.org/10.3390/ijerph17155485

Carpio, C. E., & Isengildina-Massa, O. (2008, February 2–6). *Consumer willingness to pay for locally grown products: The case of South Carolina* [Paper presentation]. Southern Agricultural Economics Association (SAEA) 2008 Annual Meeting, Dallas, Texas, United States. https://doi.org/10.22004/ag.econ.6815

Carson, R. A., Hamel, Z., Giarrocco, K., Baylor, R., & Mathews, L. G. (2016). Buying in: The influence of interactions at farmers' markets. *Agriculture and Human Values*, *33*(4), 861-875. https://doi.org/10.1007/s10460-015-9675-y

Chambers, S., Lobb, A., Butler, L., Harvey, K., & Traill, W. B. (2007). Local, national and imported foods: A qualitative study. *Appetite*, *49*(1), 208-213. https://doi.org/10.1016/j.appet.2007.02.003

Chang, K.-L., Xu, P., Warmann, J., Lone, T., Munzimi, Z.-S., & Opoku, E. (2013). Consumer characteristics and willingness to pay for locally produced product: A case study of rib-eye steaks in the Northern Great Plains. *Journal of Agriculture, Food Systems, and Community Development*, *4*(1), 99–121. https://doi.org/10.5304/jafscd.2013.041.003

Cicatiello, C. (2020). Alternative food shoppers and the "quantity dilemma": A study on the determinants of their purchases at alternative markets. *Agricultural and Food Economics*, *8*, Article 15. https://doi.org/10.1186/s40100-020-00160-6

Cranfield, J., Henson, S., & Blandon, J. (2012). The effect of attitudinal and sociodemographic factors on the likelihood of buying locally produced food. *Agribusiness*, *28*(2), 205-221. https://doi.org/10.1002/agr.21291

Curtis, K. R. (2014). Premium potential for geographically labeled, differentiated meat products. *Journal of Agriculture, Food Systems, and Community Development, 4*(2), 97–111. https://doi.org/10.5304/jafscd.2014.042.016

Curtis, K., Feuz, S., & Aybar, N. (2012). *Consumer willingness to pay for specialty meats* (Applied Economics/2012-24pr). Utah State University Cooperative Extension. https://digitalcommons.usu.edu/cgi/viewcontent.cgi?referer=&httpsredir=1&article=2015&context=extension_curall

Delmore, R. J. (n.d.). *Beef shelf-life* [Product quality fact sheet]. National Cattlemen's Beef Association. Retrieved March 2, 2023, from https://www.beefresearch.org/resources/product-quality/fact-sheets/beef-shelf-life

Dobbs, L. M., Jensen, K. L., Leffew, M. B., English, B. C., Lambert, D. M., & Clark, C. D. (2016). Consumer willingness to pay for Tennessee beef. *Journal of Food Distribution Research, 47*(2), 38-61. https://doi.org/10.22004/ag.econ.240768

Eastwood, D. B. (1996). Using consumer surveys to promote farmers' markets: A case study. *Journal of Food Distribution Research*, *27*(3), 23-30. https://doi.org/10.22004/ag.econ.27898

Eastwood, D. B., Brooker, J. R., & Gray, M. D. (1999). Location and other market attributes affecting farmer's market patronage: The case of Tennessee. *Journal of Food Distribution Research, 30*(1), 63-72. https://doi.org/10.22004/ag.econ.26789

Eastwood, D. B., Brooker, J. R., & Orr, R. H. (1987). Consumer preferences for local versus out-of-state grown selected fresh produce: The case of Knoxville, Tennessee. *Journal of Agricultural and Applied Economics*, *19*(2), 183-194. https://doi.org/10.1017/s0081305200025450

FMI, The Food Industry Association [FMI] & Foundation for Meat & Poultry Education & Research. (2020). *The power of meat: Midyear 2020 edition*. https://www.fmi.org/forms/store/ProductFormPublic/power-of-meat-midyear-2020-edition

Gandee, J. E., Brown, C., & D'Souza, G. E. (2003, July 27–30). *The role of spatial and demographic characteristics in direct farm marketing: An econometric approach* [Paper presentation]. Agricultural and Applied Economics Association (AAEA) Conferences 2003 Annual Meeting, Montreal, Canada. https://doi.org/10.22004/ag.econ.21912

Giraud, K. L., Bond, C. A., & Bond, J. J. (2005). Consumer preferences for locally made specialty food products across northern New England. *Agricultural and Resource Economics Review*, *34*(2), 204-216. https://doi.org/10.22004/ag.econ.10231

Google. (2021). *Google Maps: Butcher shops in South Carolina*. Retrieved September 25, 2022, from https://www.google.com/maps/search/Butcher+Shops+South+Carolina/@33.7073173,-81.2401018,8.25z

Govindasamy, R., Zurbriggen, M., Italia, J., Adelaja, A. O., Nitzsche, P., & VanVranken, R. (1998). *Farmers markets: Consumer trends, preferences, and characteristics* (Report P-02137-7-98). Rutgers University Cooperative Extension. https://doi.org/10.22004/ag.econ.36722

Gracia, A. (2014). Consumers' preferences for a local food product: A real choice experiment. *Empirical Economics*, *47*, 111–128. https://doi.org/10.1007/s00181-013-0738-x

Gracia, A., & de-Magistris, T. (2016). Consumer's willingness to pay for indigenous meat products: The case of a Spanish sheep breed. *Spanish Journal of Agricultural Research*, *14*(2), Article e01SC01. https://doi.org/10.5424/sjar/2016142-8230

Gracia, A., de Magistris, T., & Nayga, R. M., Jr. (2012). Importance of social influence in consumers' willingness to pay for local food: are there gender differences? *Agribusiness, 28*(3), 361–371. https://doi.org/10.1002/agr.21297

Grannis, J. L., Hooker, N. H., & Thilmany, D. D. (2000, June 29–July 1). *Consumer preference for specific attributes in natural beef products* [Paper presentation]. Western Agricultural Economics Association Annual Meeting, Vancouver, British Columbia, Canada. https://doi.org/10.22004/ag.econ.36406

Green, W. H. (2018). *Econometric analysis, 8th Edition*. Stern School of Business, New York University.

Guzman, J. (2020, May 5). The meat shortage has arrived: Grocers limit meat purchases as coronavirus threatens supply. *The Hill*. https://thehill.com/changing-america/resilience/natural-disasters/496135-grocers-limit-meat-purchases-as-coronavirus

Gwin, L., & Lev, L. (2011). Meat and poultry buying at farmers markets: A survey of shoppers at three markets in Oregon. *Journal of Extension*, *49*(1), Article 20. https://tigerprints.clemson.edu/joe/vol49/iss1/20/

Hallaron Advertising Agency. (n.d.). *The law of diminishing returns works for advertising, too*. September 25, 2022, from https://hallaron.com/the-law-of-diminishing-returns-works-for-advertising-too/

Hinson, R. A., & Bruchhaus, M. N. (2005). Louisiana strawberries: Consumer preferences and retailer advertising. *Journal of Food Distribution Research*, *36*(1), 86–90. https://doi.org/10.22004/ag.econ.26772

Hwang, Y. J., Roe, B. E., & Teisl, M. F. (2005, July 24–27). *An empirical analysis of United States consumers' concerns about eight food production and processing technologies* [Paper presentation]. Agricultural and Applied Economics Association (AAEA) Conference, Providence, Rhode Island, United States. https://doi.org/10.22004/ag.econ.19128

Ingredion. (2019, May 3). *The future of clean label series: Regulating clean label* [Blog post]. https://www.ingredion.com/emea/en-uk/be-whats-next/blog/the-future-of-clean-label-series-regulating-clean-label.html

Jekanowski, M. D., Williams, D. R., II, & Schick, W. A. (2000). Consumers' willingness to purchase locally produced agricultural products: An analysis of an Indiana survey. *Agricultural and Resource Economics Review*, *29*(1), 43–53. https://doi.org/10.22004/ag.econ.31329

Kemp, K., Insch, A., Holdsworth, D. K., & Knight, J. G. (2010). Food miles: Do UK consumers actually care? *Food Policy*, *35*(6), 504-513. https://doi.org/10.1016/j.foodpol.2010.05.011

Knight, E. P., House, L., Nelson, M. C., & Degner, R. L. (2006). An evaluation of consumer preferences regarding goat meat in the South. *Journal of Food Distribution Research*, 37(1), 88-96. https://doi.org/10.22004/ag.econ.8543

Kuches, K., Toensmeyer, U. C., German, C. L., & Kuklish, J. (2000). The impact of respondents' characteristics on purchasing decisions. *Journal of Food Distribution Research*, *31*(1), 131-138. https://doi.org/10.22004/ag.econ.27437

Kuck, G., & Schnitkey, G. (2021, May 12). An overview of meat consumption in the United States. *farmdoc daily*, *11*, 76. Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign. https://farmdocdaily.illinois.edu/2021/05/an-overview-of-meat-consumption-in-the-united-states.html

Lim, K. H., Hu, W., Maynard, L. J., & Goddard, E. (2013). U.S. consumers' preference and willingness to pay for country-of-origin-labeled beef steak and food safety enhancements. *Canadian Journal of Agricultural Economics*, *61*(1), 93-118. https://doi.org/10.1111/j.1744-7976.2012.01260.x

Lin, B.-H. (2020). *COVID-19 Working Paper: Shares of commodity consumption at home, restaurants, fast food places, schools, and other away-from-home places: 2013-16* (Report AP-085). U.S. Department of Agriculture Economic Research Service. https://www.ers.usda.gov/publications/pub-details/?pubid=100137

Lin, B.-H., Anekwe, T. D., Buzby, J. C., & Bentley, J. (2016). *U.S. food commodity availability by food source, 1994-2008* (Report ERR-221). U.S. Department of Agriculture Economic Research Service. https://www.ers.usda.gov/publications/pub-details/?pubid=81817

Local Organic Y'all. (2016). *Many miles to go: Locally-grown organics in North Carolina supermarkets*. http://www.localorganicyall.org/uploads/5/7/1/0/57107101/many_miles_to_go.pdf

Loureiro, M. L., & Hine, S. (2002). Discovering niche markets: A comparison of consumer willingness to pay for local (Colorado Grown), organic, and GMO-free products. *Journal of Agricultural and Applied Economics*, *34*(3), 477-487. https://doi.org/10.1017/s1074070800009251

Loureiro, M. L., & Umberger, W. J. (2003). Estimating consumer willingness to pay for country-of-origin labeling. *Journal of Agricultural and Resource Economics*, *28*(2), 287–301. https://doi.org/10.22004/ag.econ.31091

Loureiro, M. L., & Umberger, W. J. (2007). A choice experiment model for beef: What US consumer responses tell us about relative preferences for food safety, country-of-origin labeling and traceability. *Food Policy*, *32*(4), 496-514. https://doi.org/10.1016/j.foodpol.2006.11.006

Lusk, J., & McCluskey, J. J. (2020, September 25). Consumer behavior during the pandemic. In *Economic impacts of COVID-19 on food and agricultural markets* (CAST Commentary QTA2020-3) (pp. 11–13). Council for Agricultural Science and Technology. https://www.cast-science.org/wp-content/uploads/2020/06/QTA2020-3-COVID-Impacts.pdf

Macfadyen, T. (1985). The rise of the supermarket. *American Heritage, 36*(6). https://www.americanheritage.com/rise-supermarket

Makweya, F. L., & Oluwatayo, I. B. (2019). Consumers' preference and willingness to pay for graded beef in Polokwane municipality, South Africa. *Italian Journal of Food Safety*, *8*(1), 46–54. https://doi.org/10.4081/ijfs.2019.7654

McEachern, M. G., Warnaby, G., Carrigan, M., & Szmigin, I. (2010). Thinking locally, acting locally? Conscious consumers and farmers' markets. *Journal of Marketing Management*, *26*(5-6), 395-412. https://doi.org/10.1080/02672570903512494

McKee, E. (2021). Where do 'localphiles' shop?: A mixed-methods case study of food-buying habits. *Journal of Agriculture, Food Systems, and Community Development, 10*(2), 339-358. https://doi.org/10.5304/jafscd.2021.102.023

McMullen, L. K. (2006). Consumer preference, attitude, and acceptance of pork. *Iowa State University Animal Industry Report*, *3*(1). https://doi.org/10.31274/ans_air-180814-80

Megicks, P., Memery, J., & Angell, R. J. (2012). Understanding local food shopping: Unpacking the ethical dimension. *Journal of Marketing Management*, *28*(3-4), 264-289. https://doi.org/10.1080/0267257X.2012.658838

Meneely, L., Burns, A., & Strugnell, C. (2009). Age associated changes in older consumers retail behaviour. *International Journal of Retail and Distribution Management*, *37*(12), 1041-1056. https://doi.org/10.1108/09590550911005010

Merritt, M. G., DeLong, K. L., Griffith, A. P., & Jensen, K. L. (2018). Consumer willingness to pay for Tennessee certified beef. *Journal of Agricultural and Applied Economics*, *50*(2), 233–254. https://doi.org/10.1017/aae.2017.35

Mulder, J., & de Bruijne, M. (2019). Willingness of online respondents to participate in alternative modes of data collection. *Survey Practice*, *12*(1), 1–11. https://doi.org/10.29115/sp-2019-0001

Neff, R. A., Edwards, D., Palmer, A., Ramsing, R., Righter, A., & Wolfson, J. (2018). Reducing meat consumption in the USA: A nationally representative survey of attitudes and behaviours. *Public Health Nutrition*, *21*(10), 1835–1844. https://doi.org/10.1017/S1368980017004190

Nelson, B., & Richards, S. (2021). *Beef cost calculator* [Microsoft Excel File]. Clemson Agribusiness Livestock Marketing. https://web.archive.org/web/20221103232901/https://www.clemson.edu/extension/agribusiness/marketing/livestock.html

Niche Meat Processor Assistance Network [NMPAN]. (2022, June 23). State funding programs for meat processing facility improvements/upgrades/new facilities. https://www.nichemeatprocessing.org/state-funding-programs-for-meat-processing-facility-improvements-upgrades-new-facilities/

Omaha Steaks. (n.d.). *A century of steak*. Omaha Steaks Company history. Retrieved September 25, 2022, from https://www.omahasteaks.com/info/Century-of-Steak

Onozaka, Y., & Thilmany McFadden, D. (2011). Does local labeling complement or compete with other sustainable labels? A conjoint analysis of direct and joint values for fresh produce claim. *American Journal of Agricultural Economics*, *93*(3), 693–706. https://doi.org/10.1093/ajae/aar005

Onozaka, Y., Nurse, G., & Thilmany McFadden, D. (2010). Local food consumers: How motivations and perceptions translate to buying behavior. *Choices*, *25*(1). https://www.choicesmagazine.org/UserFiles/file/article_116.pdf

Perret, A., & Jackson, C. (2018). *The influence of farmer-customer interactions at farmers markets on farmer growing practices*. Appalachian Sustainable Agriculture Project (ASAP). https://asapconnections.org/report/influence-farmer-customer-interactions-farmers-markets-farmer-growing-practices/

Picardy, J. A., Cash, S. B., & Peters, C. (2020). Uncommon alternative: Consumers' willingness to pay for niche pork tenderloin in New England. *Journal of Food Distribution Research*, *51*(2), 61–91. https://doi.org/10.22004/ag.econ.305483

Redman, R. (2020, May 27). Nearly 80% of U.S. consumers shopped online for groceries since COVID-19 outbreak. *Supermarket News.* https://www.supermarketnews.com/online-retail/nearly-80-us-consumers-shopped-online-groceries-covid-19-outbreak

Richards, S. (2020a). *Livestock producer survey results* [Unpublished report for Berkeley Electric Cooperative and the South Carolina Cattlemen's Association; copy in possession of first author]. College of Agriculture, Forestry and Life Sciences, Clemson University.

Richards, S. (2020b). *Beef marketing study* [Unpublished report for Black Grove Beef; copy in possession of first author]. College of Agriculture, Forestry and Life Sciences, Clemson University.

Richards, S. (2021). *Goat meat feasibility study and marketing plan* [Unpublished report for Marshview Farms and USDA Rural Development; copy in possession of first author]. College of Agriculture, Forestry and Life Sciences, Clemson University.

Richards, S., & Vassalos, M. (2020). COVID-19 amplifies local meat supply chain issues in South Carolina. *Journal of Agriculture, Food Systems, and Community Development*, *10*(1), 191–195. https://doi.org/10.5304/jafscd.2020.101.001

Richards, S., & Vassalos, M. (2021). COVID-19 and consumer demand for local meat products in South Carolina. *Journal of Agriculture, Food Systems, and Community Development*, *10*(3), 31–36. https://doi.org/10.5304/jafscd.2021.103.004

Robinson, R., & Smith, C. (2002). Psychosocial and demographic variables associated with consumer intention to purchase sustainably produced foods as defined by the Midwest Food Alliance. *Journal of Nutrition Education and Behavior*, *34*(6), 316–325. https://doi.org/10.1016/S1499-4046(06)60114-0

Ross, A. (2016, September 9). The surprising way a supermarket changed the world. *Time.* https://time.com/4480303/supermarkets-history/

Sanders, D. R., Moon, W., & Kuethe, T. H. (2007). Consumer willingness-to-pay for fresh pork attributes. *Journal of Agribusiness*, *25*(2), 163–179. https://doi.org/10.22004/ag.econ.62294

Shi, R., & Hodges, A. W. (2016). Shopping at farmers' markets: Does ease of access really matter? *Renewable Agriculture and Food Systems*, *31*(5), 441–451. https://doi.org/10.1017/S1742170515000368

Skallerud, K., & Wien, A. H. (2019). Preference for local food as a matter of helping behaviour: Insights from Norway. *Journal of Rural Studies*, *67*, 79–88. https://doi.org/10.1016/j.jrurstud.2019.02.020

Smith, W. G. (2008). Does gender influence online survey participation?: A record-linkage analysis of university faculty online survey response behavior, ERIC Document Reproduction Service No. ED 501717. ERIC: Institute of Educational Sciences. https://files.eric.ed.gov/fulltext/ED501717.pdf

South Carolina Department of Agriculture [SCDA]. (2022, December 1). *$3 million in grants offered to improve in-state meat processing* (Press release). https://agriculture.sc.gov/3-million-in-grants-offered-to-improve-in-state-meat-processing/

Sri Lestari, V., Natsir, A., Karim, H., & Patrick, I. (2016). Factors affecting consumers' willingness to pay for chicken meat from biosecure farms. *International Journal of Economics and Management Engineering*, *10*(6), 2062–2066. https://doi.org/10.5281/zenodo.1125089

Staisey, N., & Harris, H. (2019). Creating a farmers' market living lab: Lessons learned in growing a farmers' market. *Journal of Food Distribution Research*, *50*(1), 145–148. https://doi.org/10.22004/ag.econ.292195

Stutzman, A. (2020). *A meta-analysis of willingness to pay for local beef* [Master's thesis, Kansas State University]. K-State Research Exchange. https://krex.k-state.edu/dspace/handle/2097/40674

Tackie, N. O., Bartlett, J. R., & Adu-Gyamfi, A. (2015). The impact of socioeconomic factors and meat attributes on willingness to pay for locally or regionally produced livestock products in Alabama. *Journal of Economics and Sustainable Development, 6*(12), 140–153. https://www.iiste.org/Journals/index.php/JEDS/article/view/23649/0

Tackie, D. N. O., Bartlett, J. R., Adu-Gyamfi, A., De-Heer, S. M., Quarcoo, F. A., & Perry, B. J. (2018). The impact of socioeconomic factors and meat attributes on willingness to pay for locally or regionally produced livestock products in Georgia. *International Journal of Economics, Commerce and Management*, *6*(6), 110–133. https://ijecm.co.uk/wp-content/uploads/2018/06/668.pdf

Tackie, D. N. O., Bartlett, J. R., Adu-Gyamfi, A., & Kpomblekou, F.-A. J. (2017). The impact of socioeconomic factors and meat attributes on willingness to pay for locally or regionally produced livestock products in Florida, US. *International Journal of Economics, Commerce and Management*, *5*(7), 334–355. https://ijecm.co.uk/wp-content/uploads/2017/07/5722.pdf

Tait, P. R., Rutherford, P., Driver, T., Li, X., Saunders, C. M., Dalziel, P., & Guenther, M. (2018). *Consumer insights and willingness to pay for attributes: New Zealand beef products in California, USA* (Research Report No. 348). Research@Lincoln. https://researcharchive.lincoln.ac.nz/handle/10182/10037

Thilmany, D. D., Grannis, J. L., & Sparling, E. (2003). Regional demand for natural beef products in Colorado: Target consumers and willingness to pay. *Journal of Agribusiness*, *21*(2), 149–165. https://doi.org/10.22004/ag.econ.14667

Thilmany, D. D., Umberger, W. J., & Ziehl, A. R. (2006). Strategic market planning for value-added natural beef products: A cluster analysis of Colorado consumers. *Renewable Agriculture and Food Systems*, *21*(3), 192–203. https://doi.org/10.1079/raf2005143

Tonsor, G. T., Lusk, J. L., & Tonsor, S. L. (2021). Meat demand monitor during COVID-19. *Animals*, *11*(4), Article 1040. https://doi.org/10.3390/ani11041040

Tregear, A., & Ness, M. (2005). Discriminant analysis of consumer interest in buying locally produced foods. *Journal of Marketing Management*, *21*(1–2), 19–35. https://doi.org/10.1362/0267257053166811

Umberger, W. J., Feuz, D. M., Calkins, C. R., & Sitz, B. M. (2003). Country-of-origin labeling of beef products: U.S. consumers' perceptions. *Journal of Food Distribution Research*, *34*(3), 103–116. https://doi.org/10.22004/ag.econ.27050

Umberger, W. J., Thilmany McFadden, D. D., & Smith, A. R. (2009). Does altruism play a role in determining U.S. consumer preferences and willingness to pay for natural and regionally produced beef? *Agribusiness*, *25*(2), 268–285. https://doi.org/10.1002/agr.20194

U.S. Census Bureau. (2020). *Geography profile: South Carolina.* https://data.census.gov/cedsci/profile?g=0400000US45

U.S. Census Bureau. (2022). Income, poverty, and health insurance coverage in the U.S.: 2021. Press Release Number CB22-153. United States Census Bureau, September 13. https://www.census.gov/newsroom/press-releases/2022/income-poverty-health-insurance-coverage.html

U.S. Department of Agriculture [USDA]. (2021, July 9). *USDA announces $500 million for expanded meat & poultry processing capacity as part of efforts to increase competition, level the playing field for family farmers and ranchers, and build a better food system* (Press release 0154.21). https://www.usda.gov/media/press-releases/2021/07/09/usda-announces-500-million-expanded-meat-poultry-processing

USDA Economic Research Service [ERS]. (2017). *Commodity consumption by population characteristics* (Updated February 2016, March 2017). [Data set]. https://www.ers.usda.gov/data-products/commodity-consumption-by-population-characteristics.aspx

USDA ERS. (2021). *Food availability and consumption*. Retrieved September 25, 2022, from https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/food-availability-and-consumption/

Verbeke, W., Rutsaert, P., Bonne, K., & Vermeir, I. (2013). Credence quality coordination and consumers' willingness-to-pay for certified halal labelled meat. *Meat Science*, *95*(4), 790–797. https://doi.org/10.1016/j.meatsci.2013.04.042

Ver Ploeg, M., Larimore, E., & Wilde, P. E. (2017). *The influence of food store access on grocery shopping and food spending* (Economic Information Bulletin 180). USDA ERS. https://doi.org/10.22004/ag.econ.264600

WLTX. (2022, May 31). *South Carolina cattle farmers form cooperative to increase meat processing capacity.* News 19. https://www.wltx.com/article/money/business/south-carolina-cattle-farmers-form-cooperative-to-increase-beef-processing-capacity-meat-rancher/101-7f6cfeff-9893-46a0-bd51-511843f4fb8d

Wolf, M. M. (1997). A target consumer profile and positioning for promotion of the direct marketing of fresh produce: A case study. *Journal of Food Distribution Research*, *28*(3), 11–17. https://doi.org/10.22004/ag.econ.27211

Wolf, M. M., Spittler, A., & Ahern, J. (2005). A profile of farmers' market consumers and the perceived advantages of produce sold at farmers' markets. *Journal of Food Distribution Research*, *36*(1), 192–201. https://doi.org/10.22004/ag.econ.26768

Xue, H., Mainville, D., You, W., & Nayga, R. M., Jr. (2010). Consumer preferences and willingness to pay for grass-fed beef: Empirical evidence from in-store experiments. *Food Quality and Preference*, *21*(7), 857–866. https://doi.org/10.1016/j.foodqual.2010.05.004

Zepeda, L., & Li, J. (2006). Who buys local food? *Journal of Food Distribution Research*, *37*(3), 1–11. https://doi.org/10.22004/ag.econ.7064

Appendix

Table A1. Multiple Linear Regression for Frequency of Consumption

	Beef	Pork	Chicken	Turkey	Lamb	Goat
(Intercept)	55.80 ***	63.79 ***	63.08 ***	50.70 ***	58.68 *	40.46
	–6.59	–8.69	–7.34	–11.72	–24.14	–27.65
Gender	–8.27 ***	–10.44 ***	–7.45 **	–12.54 **	–15.95^	–26.82 *
	–2.25	–2.84	–2.45	–4.23	–9.72	–12.16
Age	–0.91	0.11	–0.87	–0.11	–1.19	2.74
	–0.7	–0.86	–0.75	–1.28	–3.1	–3.66
Ethnicity	–5.19 *	–6.66 *	–1.53	–2.54	–6.49	–4.48
	–2.61	–3.08	–2.71	–4.41	–10.72	–11.6
Education	–0.17	0	–0.41	4.58 *	14.26 *	19.66 **
	–1.26	–1.55	–1.3	–2.28	–5.66	–5.73
HHSize	1.94 *	0.56	1.68	3.66 *	1.01	11.57 *
	–0.92	–1.21	–1.03	–1.82	–3.74	–4.54
HHIncome	–0.91	–2.47 *	–1.69^	–3.20 *	–3.95	–8.45 *
	–0.84	–1.02	–0.9	–1.58	–3.13	–3.7
Tenure	1.77 **	1.55 *	1.75 **	1.57	–0.93	–4.47
	–0.57	–0.75	–0.62	–1.07	–2.55	–3.1
N	589	407	571	223	65	40
R2	0.05	0.06	0.04	0.08	0.16	0.47

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$, ^ $p < 0.10$

Table A2. Ordered Logit Regression for Willingness to Pay at Home

	Beef	Pork	Chicken	Turkey	Lamb	Goat
Gender	0.389*	0.251	0.309^	–0.072	–1.19*	–1.284
	–0.174	–0.215	–0.176	–0.283	–0.506	–0.974
Age	–0.221***	–0.219***	–0.246***	–0.221**	–0.210	–0.346
	–0.055	–0.065	–0.055	–0.085	–0.161	–0.271
Ethnicity	–0.116	–0.105	–0.270	–0.258	–0.220	0.575
	–0.195	–0.230	–0.192	–0.289	–0.502	–0.759
Education	0.279**	0.217^	0.259**	0.290^	0.562^	0.570
	–0.097	–0.118	–0.093	–0.151	–0.298	–0.388
	–0.070	–0.089	–0.073	–0.116	–0.205	–0.314
HHIncome	0.105^	0.125^	0.118^	–0.040	–0.015	–0.166
	–0.064	–0.075	–0.065	–0.099	–0.164	–0.283
Tenure	0.020	0.033	–0.003	–0.080	–0.075	0.205
	–0.044	–0.056	–0.045	–0.069	–0.130	–0.237
Intercepts						
1|2	0.642	0.434	0.473	–0.574	–2.179	–3.257
2|3	–0.516	–0.676	–0.531	–0.807	–1.280	–2.298
3|4	3.522	3.323	3.136	1.534	0.446	–0.471
4|5	–0.546	–0.711	–0.553	–0.817	–1.251	–2.243
5|6	5.022	5.735	4.999	3.405	2.141	1.531
6|7	–0.617	–0.978	–0.665	–0.929	–1.338	–2.284

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; ^ $p < 0.1$

Table A3. Ordered Logit Regression for Willingness to Pay at a Restaurant

	Beef	Pork	Chicken	Turkey	Lamb	Goat
Gender	0.443*	0.236	0.305	0.005	–0.564	–2.67***
	–0.215	–0.257	–0.219	–0.317	–0.582	–0.637
Age	–0.082	–0.169*	–0.113^	–0.156	–0.311	–0.290
	–0.066	–0.081	–0.067	–0.101	–0.197	–0.178
Ethnicity	–0.165	–0.193	–0.219	–0.179	0.323	0.433
	–0.237	–0.289	–0.240	–0.345	–0.662	–0.508
Education	0.137	0.189	0.147	0.345*	0.312	0.298
	–0.117	–0.139	–0.114	–0.167	–0.350	–0.226
HHSize	–0.068	–0.093	–0.046	–0.144	–0.280	0.018
	–0.092	–0.121	–0.095	–0.144	–0.276	–0.206
HHIncome	0.086	0.015	0.114	0.013	0.068	0.418*
	–0.080	–0.091	–0.079	–0.115	–0.191	–0.165
Tenure	–0.078	–0.155*	–0.063	–0.042	0.232	0.127
	–0.054	–0.067	–0.056	–0.081	–0.153	–0.123
Intercepts						
1|2	0.414	–0.805	0.463	0.035	–1.594	0.975
2|3	–0.629	–0.822	–0.676	–0.911	–1.479	–1.396
3|4	2.225	1.266	2.327	1.879	0.027	1.579
4|5	–0.640	–0.818	–0.687	–0.926	–1.455	–1.408
5|6	3.365	2.304	3.469	2.968	0.755	2.732
6|7	–0.664	–0.841	–0.713	–0.973	–1.482	–1.462

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; ^ $p < 0.1$

Understanding small- and very-small-scale meat processors in Missouri to strengthen the local supply chain

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Abstract
Promoting local food systems is crucial to providing a more viable economy, eco-friendly production, and equal opportunities for producers, consumers, and communities. Meat processors are critical to local meat producers and the meat supply chain. However, various barriers have restricted small-scale meat processors and challenged the local meat supply chain. Although local food systems have gained enormous scholarly attention, little attention has been devoted to specifically exploring the meat processing sector. This study investigated the characteristics and challenges of small-scale

(<750 employees) and very-small–scale (<200 employees) meat processors in Missouri. Twenty-six meat processors participated in an online survey through Qualtrics, a mail survey, or a structured phone interview between May 2021 and March 2022. We identified the characteristics and constraints related to their businesses. The analysis revealed that 76% of meat processors perceived that their business was in better or much better condition than before the COVID-19 pandemic, reflecting their adaptability to the disrupted meat supply chain. However, small-scale meat processing facilities were limited by the labor shortage, complicated regulations and high regulatory compliance costs, a lack of consistent supply, and limited access to tools and equipment. More integrated work is

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needed to aid smaller processors in positively impacting the local community and environment through locally sourced meat production. This study contains helpful implications for state-level policymaking, extension programs, and future research directions.

Keywords
Small-scale meat Processors, Challenges, Local Meat, COVID-19, Pandemic, Meat Processing Industry

Introduction
Promoting local food systems is crucial to supporting community vitality and sustainability (Allen, 2010). Various entities in the U.S. have supported local food systems to provide a more viable economy, eco-friendly production and distribution, and equal opportunities for all producers, consumers, and members of the communities (Feenstra, 1997). The development of local food systems positively impacts communities by addressing food insecurity, reducing food safety risks (Peters et al., 2009), preserving natural resources and the environment, and increasing job opportunities and incomes for residents (Swenson, 2009).

Following the rising global demand for local food production, locally sourced meats have gained much attention from consumers (Darby et al., 2008). Nevertheless, the lack of slaughtering and processing facilities limits small- and medium-sized meat producers' access to the local meat market (Johnson et al., 2012). Small-scale meat processors have limited resources to innovate and realize more sustainable meat production (Mason et al., 2021). This situation raises concerns about the growth of local meat production and economic development for small and medium ranchers and meat processors.

Few studies have focused on the meat processing sector, although the local food system has gained enormous scholarly attention (Jie et al., 2013). More specifically, there is a dearth of literature exploring barriers small-scale meat processors encounter (Charlebois & Summan, 2014). Little research has explored the issues, challenges, and possible problem-solving strategies that confront them (Okpala et al., 2021). Thus, the objectives of this

study are to explore the characteristics and challenges of small- and very-small–scale meat processors in the local meat supply chain in Missouri. This study provides information for scholars, extension specialists, and policymakers to help local meat processors overcome barriers, improve efficiency and profitability, and better serve the local food system.

Missouri Meat Processing Industry: An Overview
The meat industry has been an economic driver for the state of Missouri. The meat processing and value-added industry generated US$9.5 billion in sales (Missouri Department of Agriculture, 2021) and nearly 100,000 jobs in 2021 (Missouri Agricultural and Small Business Development Authority, 2021).

Big meat processors like Tyson Foods, Cargill Food, and Smithfield Foods have multiple processing facilities in Missouri, handle millions of animals, and do business very differently from small processors. Therefore, this study does not cover the large players in the meat processing industry. As of 2021, 217 meat and poultry slaughtering or processing facilities operated in Missouri, with 161 of them being USDA-inspected and 56 state-inspected. Ninety were slaughtering facilities, and 107 were processing facilities (Missouri Agricultural and Small Business Development Authority, 2021).

Previous Research on Small-Scale Meat Processors
Small-scale meat processors are challenged by various factors, from technical to financial barriers (Johnson et al., 2012). Typical constraints include a lack of appropriate infrastructure, facilities, and space for killing, storing, and cooling carcasses to expand their production (Charlebois & Summan, 2014; Gwin, 2009). These issues make it difficult for small-scale meat processors to obtain state or federal inspections in order to sell their meat within or across state lines. For this reason, the USDA launched the Meat and Poultry Processing Expansion Program and the Meat and Poultry Inspection Readiness Grant under the American Rescue Plan. Its goal was to help small and medium-sized processors increase their capacity, efficiency, and competitiveness as well as improve supply chain resili-

ency (USDA Rural Development, 2022).

Small-scale meat processing facilities are also hindered by organizational challenges. High employee turnover and deficiency of skills in the professional workforce are prominent in small and medium-sized meat processors (Partners, 2009). This problem is exacerbated by the difficulty in accessing financial support from the government (Thompson, 2012).

Lack of financial support could potentially limit smaller processors from expanding their facilities, complying with food safety regulations, obtaining a state or federal inspection, conducting effective marketing, and broadening their markets. Pretty et al. (2010) noted that small processors often identify capital investments as barriers to expanding their markets. Limited financial power impedes the processors from implementing Hazard Analysis and Critical Control Point (HACCP) standards and upgrading their facilities to produce high-quality products.

The high compliance cost for regulations is another burden for small processors. Marsden (2004) explained that adhering to standardized food safety regulations increases the per-unit cost of processing for small facilities. Charlebois and Summan (2014) identified that small firms are often overburdened when trying to comply with the regulations concerning environmental laws.

Another issue facing small processors is inconsistent supply. They often face a boom-and-bust cycle throughout the year, fully occupied during peak seasons but experiencing a lack of supply during the low season. This cycle increases their average cost and decreases profit. Moreover, these firms often face undersupply because of no-shows and canceled appointments (Gwin et al., 2013).

We are interested in the challenges, constraints, and barriers facing small Missouri meat processors. Findings will help extension specialists, scholars, and policymakers tailor their education, research, and regulations to serve small-scale meat processors more effectively and promote the development of local meat food systems and the rural economy.

Data and Methods

This study targeted a population of 151 small- and very-small–scale meat processors in Missouri using publicly available data. The U.S. Small Business Administration defines food manufacturing business size by the number of employees. A small poultry or meat processing business has fewer than 750 employees (U.S. Small Business Administration, 2022). We define a processor as very small if it has fewer than 200 employees. The data were collected through a survey conducted from May 2021 to March 2022.[1] First, all processors were called, and those willing to participate were interviewed. The link to the survey (which was created in and conducted through Qualtrics) was then emailed to the rest, and two email reminders were sent to those who had not responded. We also mailed the survey to those who had not responded in the first two rounds, and a reminder was mailed a week later. Thirteen processors participated in phone interviews, five responded to online surveys, and 16 mailed back the survey. After removing incomplete surveys, 29 valid responses were received, for a 19.21% response rate. Three processors were eliminated from the analysis because they did not meet our criteria as small enterprises. Thus, the final sample consists of 26 meat processing facilities.

Results

Characteristics of Small-scale Meat Processors

Table 1 summarizes the demographic characteristics of the managers, owners, or CEOs of the 26 small- and very-small–scale meat processors from the data. The majority (60.00%) were 35–64 years old. The next-largest group was 65 years and older (24.00%). Males (85.19%) accounted for a much larger proportion than females (14.81%). White respondents were the dominant racial group (25 out of 26); only one was Black, and no other races were identified.

Business Profile

Information regarding the business profile of meat processing enterprises is illustrated in Table 2. Overall, most firms had been recently formed. The

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[1] The project was approved by the Lincoln University of Missouri Institutional Review Board (IRB) number IRB F2020-01.

Table 1. Demographics of the Managers, Owners, or CEOs of the Meat Processors

Categories of Personal Attributes	n[a]	Percentage (%)
Age		
18-34	4	16.00
35-64	15	60.00
65 and over	6	24.00
Gender		
Male	23	85.19
Female	4	14.81
Race		
White	25	96.15
Black	1	3.85

[a] The number of responses in each category can be more than 26 because some firms were headed by two people of different genders.

newest was established in 2020 during the COVID-19 pandemic, and the oldest was established in 1935. Limited liability companies (LLC), limited liability partnerships (LLP), or partnerships accounted for 80.77% (21 out of 26) of the organizational forms. Business ownership status was largely dominated by family-owned enterprises (25 out of 26).[2]

Overall, 61.54% of meat processors ran their facilities at full capacity, while the rest of the firms (38.46%) operated below full capacity. On average, these processors employed seven full-time–equivalent employees, with two as the minimum and 40 as the maximum. In terms of the range in annual sales, eight businesses had sales of US$300,000 to US$1,000,000, while three had sales less than US$50,000 (see Table 2 for details).

Services and Revenue Sources

There were six major species of animals processed by small-scale meat processing facilities: cattle, hogs, poultry, goats, sheep, and game animals (Table 3). Most of facilities processed multiple species of animals. Twenty-one of the 26 processors processed cattle and hogs. The maximum number of cattle processed was 1,700 head per year, and the minimum was 75. The maximum number of hogs processed was 1,500, and the

Table 2. Business Characteristics of Small- and Very-Small–Sized Missouri Meat Processors

Variables and Categories	n[a]	Percentage (%)
Year of Establishment		
1935–1950	3	11.54
1951–1965	1	3.85
1966–1980	2	7.69
1981–1995	5	19.23
1996–2010	6	23.08
2011–2022	9	34.62
Legal Form of Organization		
Corporation	3	11.54
LLC/LLP/Partnership	21	80.77
Sole Proprietorship	2	7.69
Business Ownership Status		
Family-owned	25	96.15
Non-family-owned	1	3.85
Capacity Utilization		
Full capacity	16	61.54
Below full capacity	10	38.46
Gross Sales (US$)		
Less than $50,000	3	13.64
$50,000–$100,000	1	4.55
$100,001–$150,000	2	9.09
$150,001–$200,000	2	9.09
$200,001–$300,000	2	9.09
$300,001–$500,000	3	13.64
$500,001–$1,000,000	5	22.73
>$1 million	4	18.18
Number of Full-Time Employees		
Maximum	40 workers	
Average	7 workers	
Minimum	2 workers	

[a] The number of responses in some categories may be less than 26 due to missing data.

minimum was only four. Fourteen of the processors processed sheep or lamb, but only nine processed goats. The maximum number of processed sheep/lamb was 1,000 head, but only 25 for goats.

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[2] The U.S. Small Business Administration (SBA) defines a family-owned business as a company that is managed by two or more family members and is controlled by the family.

Table 3. Processors Processing Different Animals

	Animal Species					
	Cattle	Hog	Sheep	Game Animal	Goat	Poultry
Number of processors	21	21	14	12	9	3
Average number of animals processed per year	671	394	101	787	8	1,225

The minimum of sheep and goats processed was one head per year.

More cattle and hogs were produced than goats and sheep in Missouri. In 2021, Missouri had 1.9 million beef cattle and 3.4 million hogs but only 75,000 meat goats and 97,000 sheep and lambs in inventory (USDA NASS, 2022). Only three facilities in the study processed chickens, and none processed turkey. The maximum number of birds processed was 2,500 per year, and the minimum was 100. Twelve processed game animals, and only two processed other domesticated animals. As shown in Table 3, game animals (e.g., deer and elk), cattle, and hogs were popular among meat processors, with an average of 787 deer and elk, 671 cattle, and 394 hogs processed yearly. On average, each of the three surveyed chicken processors processed 1,225 birds yearly.

These processors offered additional services to customers to broaden their markets and accommodate the needs of buyers or customers. Nineteen of the 26 offered custom processing,[3] and 12 offered custom labeling for their customers to resell the products (55.56%). These processors were critical to the local meat food system to provide processing services for livestock producers who market their meat directly to consumers or participate in other channels of the local food system.

We also asked for the percentage of revenues from processing different animals, as processors could process more than one species. Figure 1 demonstrates the average proportion of revenues generated from different animals. The majority of the sales were obtained from cattle processing (57.26%), followed by hogs (28.67%) and game animals (21.29%). Some small percentages of

revenue were derived from poultry (8.33%), other animals (e.g., alpaca and bison) (5.50%), sheep (4.76%), and goats (3.58%). These numbers aligned with the number of animals each business processes.

Source of Animals
To ensure a consistent supply for a steady business, meat processors need to understand the sources of animals. As shown in Figure 2, cattle, hogs, sheep, goats, game animals, and other domesticated animals were supplied mainly by producers or customers from the county where the meat processing facilities were located or from counties adjacent to the plants. Surprisingly, all the poultry (100%) processed by the three processors in Missouri came from bordering states. On average, states contiguous to Missouri supplied 20% of the animals for processors. This is understandable because of transportation costs (Gwin et al., 2013). Both buyers and sellers prefer to source their animals or process them close to their production or processing facilities, regardless of state borders.

Distribution and Marketing
The meat processors used three major marketing channels to sell their products: direct consumer sales, wholesale and institutional sales, and sales to restaurants. Twenty processors sold their products directly to consumers, and two only sold directly to consumers. Seven processors had wholesale or institutional sales, and two sold to catering businesses or restaurants.

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[3] Custom processing refers to the slaughtering, eviscerating, dressing, or packaging of animal carcasses or meat products. These products are returned to the owners of the animals only for personal use in their households and for nonpaying guests. This process is exempt from federal inspection, so custom-exempt processors may not buy or sell carcasses or meat products other than poultry unless they pass federal inspection (USDA Food Safety and Inspection Service, 2022).

Figure 1. Percentage of Revenues from Different Animals (*N*=26)
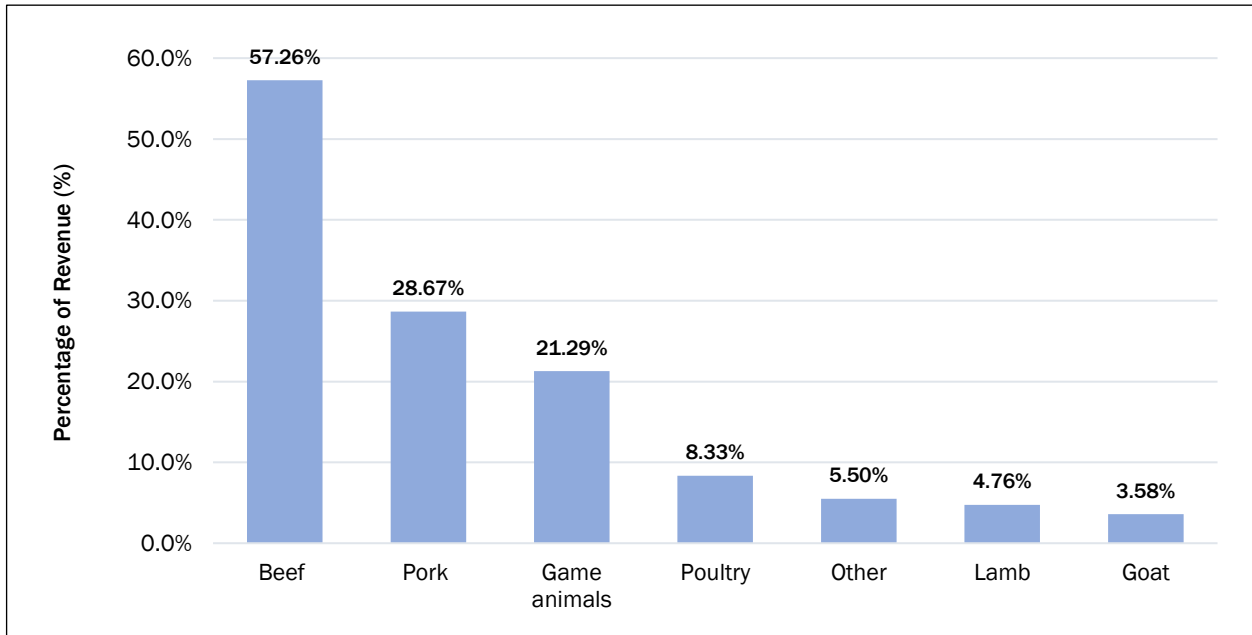
The meat processors' customers came from various locations (Figure 3). A large portion was from the same county where the plant was located, especially for retail (32.88%) and restaurants or caterers (47.00%). Retail was the primary and most profitable marketing channel for the proces-sors. Consumers from counties adjacent to the meat processing facilities appeared to shop through retail (27.90%). Most of the customers for these 26 processors were from Missouri. How-ever, 42.42% of the wholesale or institutional cus-tomers lived in a different state.

Figure 2. Sources of Animals (*N*=26)
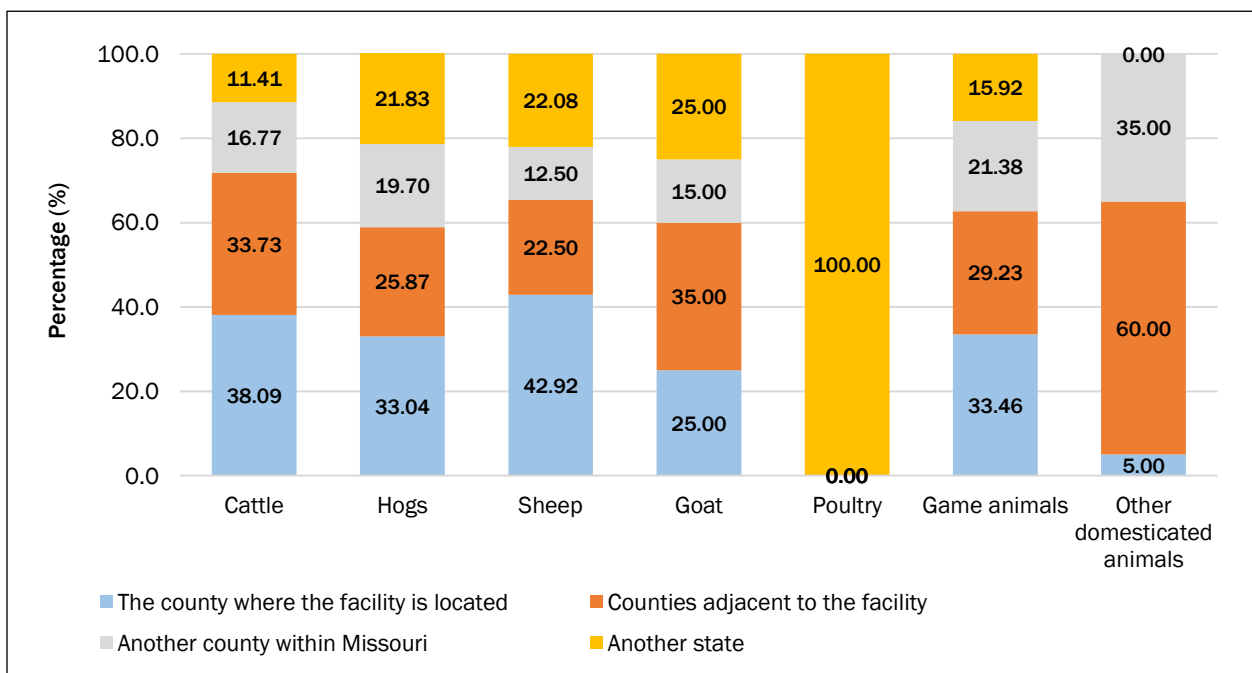
Figure 3. Locations of Customers from Different Distribution Channels (*N*=26)
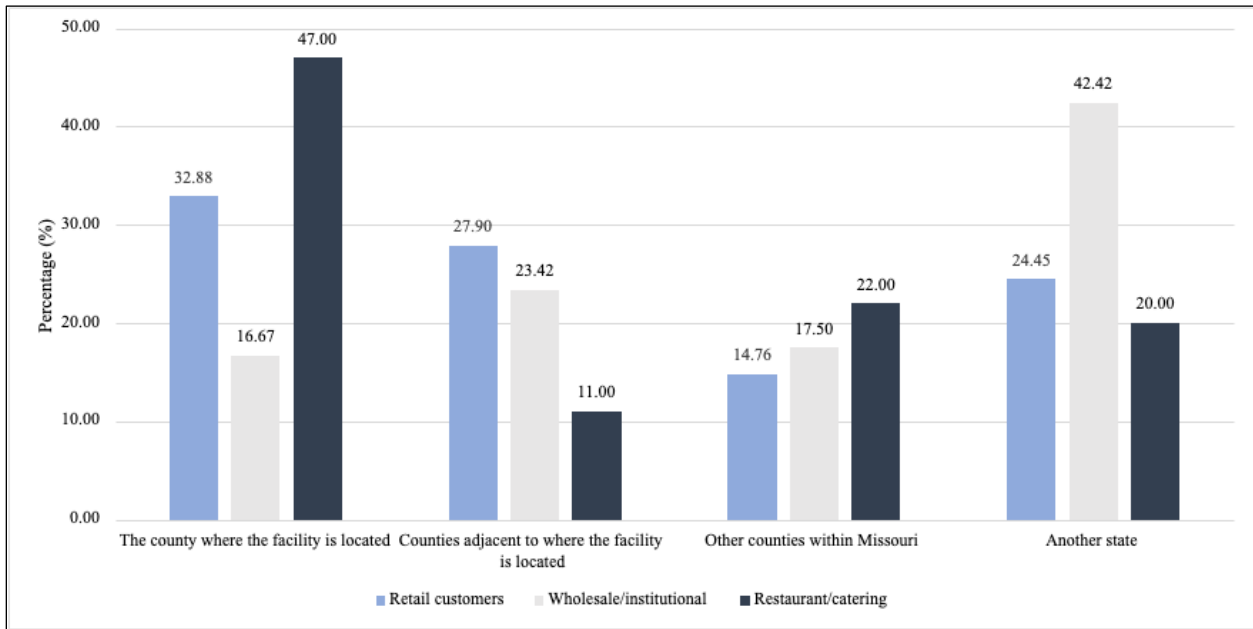
Retail Business

In terms of retail channels, most processors (73.08%) used in-store retail. The second-most popular distribution channel was call-in, fax, or mail-in retail (42.31%), and the third-most popular channel was online retail (23.08%; Figure 4). The sum of percentages of all channels exceeds 100%, as some processors used more than one distribution channel.

Different retail channels generated different revenues. On average, in-store retail accounted for 72.00% of revenue for individual processors. Due

Figure 4. Retail Channels Used by Small-Scale Meat Processors (*N*=26)
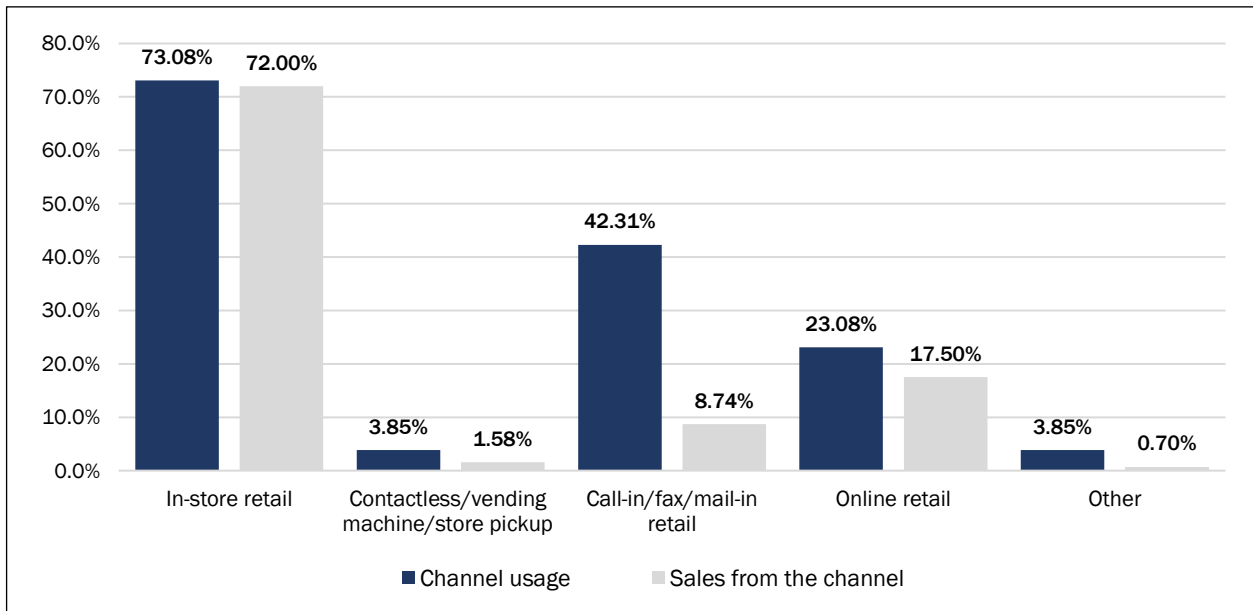
Note: The sum of retail channels used is greater than 100%, as meat processing firms used more than one retail channel.

Figure 5. Marketing Strategies Used by Small- and Very-Small–Scale Meat Processors (*N*=26)
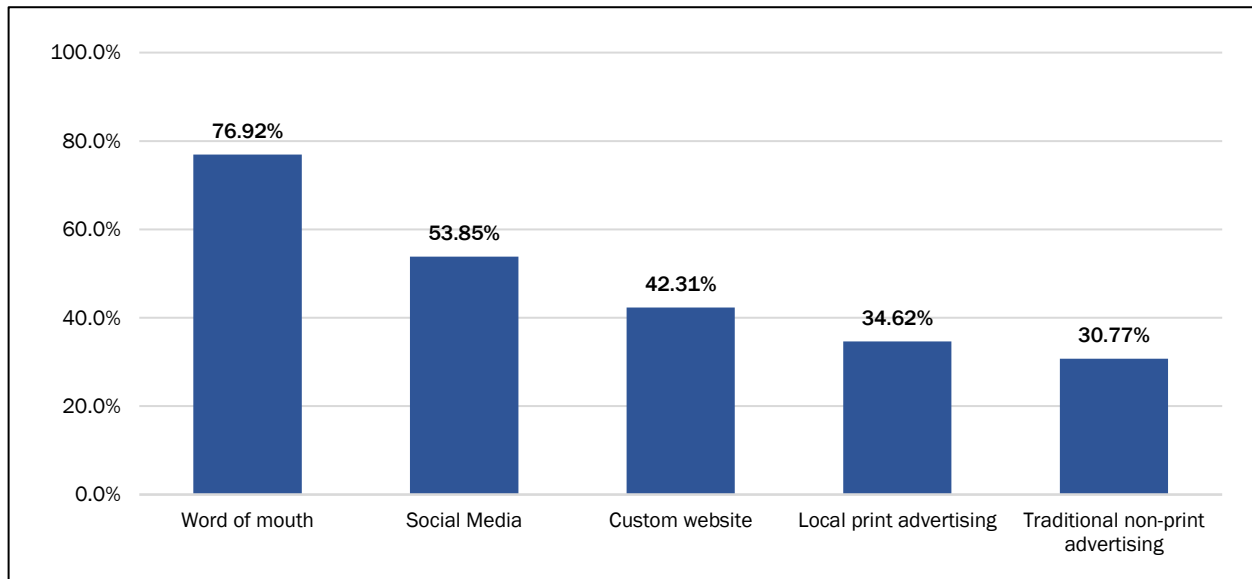
to the pandemic, some processors started to use contactless pickups by taking orders online or by phone. These firms offered online checkouts and provided a delivery option for buyers who were not able to come to the store or facility. Online orders contributed 17.50% of sales, and call-in, fax, or mail-in retail contributed 8.74% of sales.

Marketing Activities

Small and very small meat processors in Missouri employed several strategies to market their processed meat (Figure 5). Word-of-mouth was the most popular marketing activity, used by 76.92% of processors. Social media (e.g., Facebook, Instagram) was the second-most popular and was used by 53.85% of processors. Other marketing avenues processors used were custom websites (42.31%), local print (e.g., newspaper, 34.62%) and traditional nonprint advertising platforms (e.g., television and local radio channels, 30.77%).

Competition

These small processors not only competed with other small processors but also with retailers in their areas. Twenty-three out of 26 sold directly to consumers. Eighteen processors (69.23%) indicated that they had at least one competitor in meat-processing services. Five out of 26 processors indicated that Walmart was one of their biggest com-

petitors. Some mentioned that ALDI and other big and small grocery stores were also competitors. However, eight of the processors surveyed provided no examples of business competitors.

Challenges to Small-Scale Meat Processors

These processors faced serious labor issues (Figure 6). A phone interview respondent mentioned that it took time to train employees, but the employees tended to leave their job a short time after training. This high turnover of skilled labor affects the productivity of these small processors. Schweihofer et al. (2014) reported that seasonality is another factor affecting labor recruitment and skill retention for small-scale meat processors.

Regulation and a lack of supply and facilities were other problems that the processors faced. Marketing concerns were the least problematic, a different finding from Schweihofer et al. (2014), who found that marketing was one of the top challenges. The following may explain why marketing was not a major problem when marketing is defined broadly as finding buyers and customers. First, since the COVID-19 pandemic, consumer demand for local food has increased due to the disruption of the conventional food supply chain (Thilmany et al., 2021). The closure of many large meat-packers due to the outbreak of COVID-19 made some producers seek alternative marketing

Figure 6. Meat Processors' Concerns for Their Businesses (*N*=26)
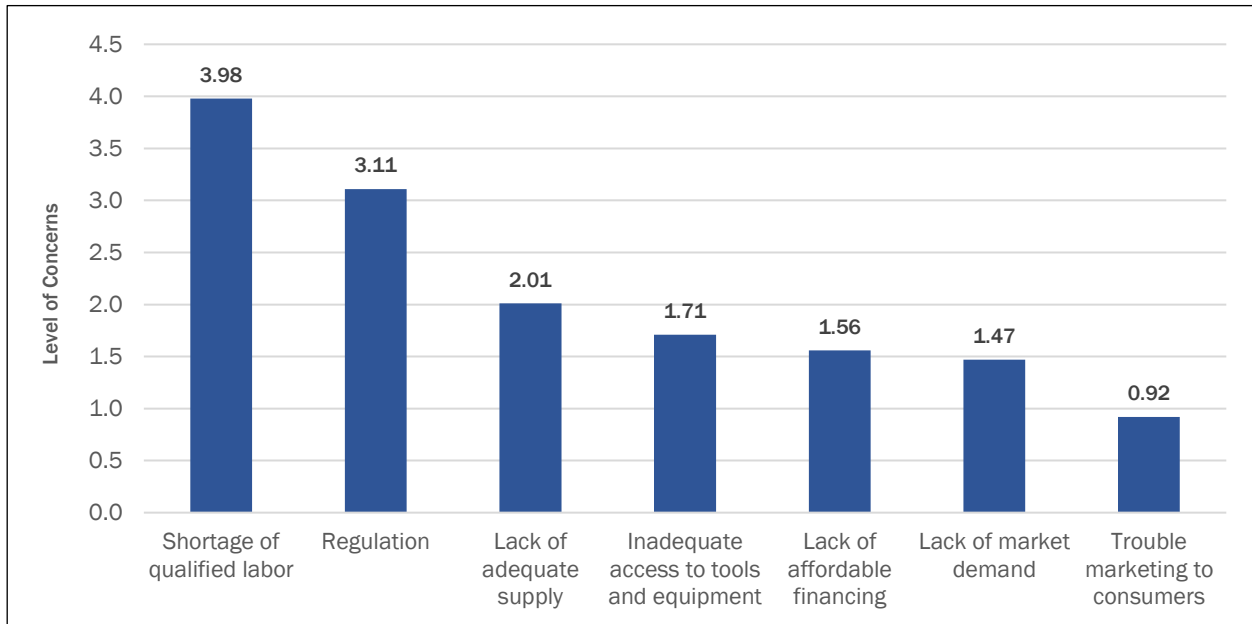
Note: The concerns are evaluated using scores from 0 to 5, where 0 is no concern and 5 is a serious concern.

channels and sell directly to consumers (Helmer, 2020; USDA Economic Research Service [ERS], 2021). Therefore, the demand for meat processing increased. Using their service reservation systems, many of the processors were booked at least one year ahead.

Impacts of the COVID-19 Pandemic on Processors' Businesses
The COVID-19 pandemic had positive impacts on some of these meat processors. As shown in Figure 7, 11 (44%) of the meat processors perceived that their businesses were in better condition than be-

Figure 7. Impacts of COVID-19 on Small- and Very-Small–Scale Meat Processors (*N*=26)
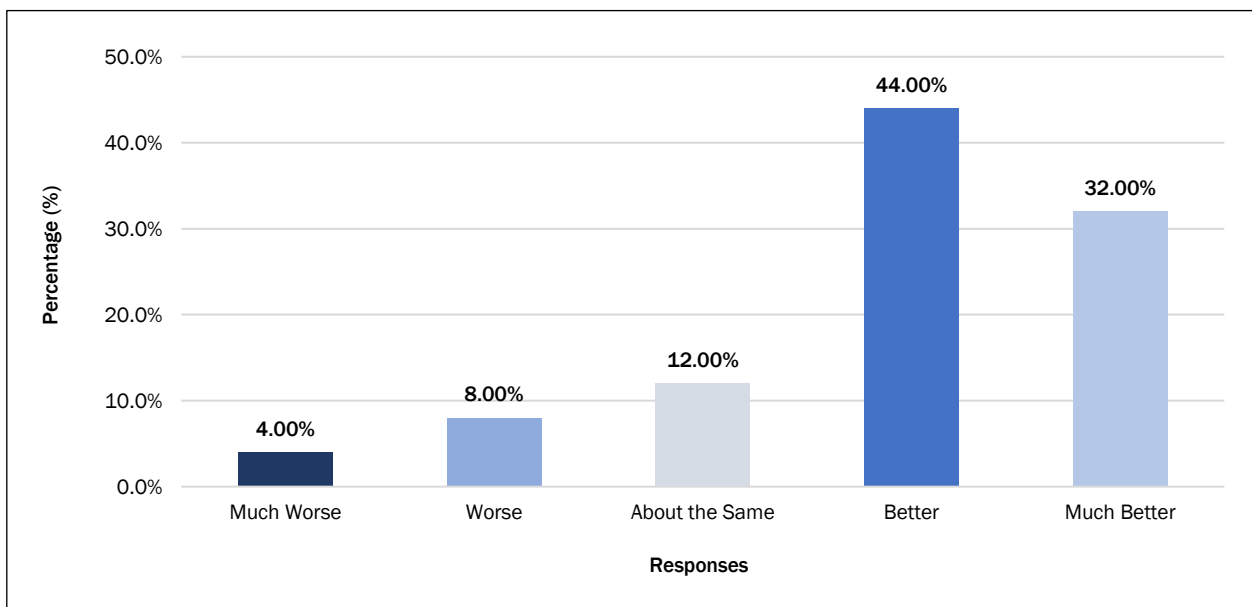
fore the COVID-19 pandemic, and eight (32%) felt they were in much better condition. However, three processors (12%) reported that their situations were worse or much worse. Two of these three processors had a serious labor issue (with a score 5 out of 5), and the other one had a moderate labor issue (score 3 out of 5). Hobbs (2021) proposed that small-scale meat processors can maintain resilience because they are more adaptable than larger firms. These meat processors who were able to increase their production by applying their underutilized capabilities could take advantage of the increased demand for local meat.

Discussion

Meat processors play important roles in the local meat food systems. Using primary data collected through a survey, this study explored the characteristics and challenges of small- and very-small–scale meat processors in Missouri to improve the efficiency of these processors and streamline the coordination of the local meat food supply chain.

Labor Shortage was a Key Limiting Factor for Small-Scale Meat Processors

Findings indicated that only 61.54% of meat processors were operating their plants at full capacity. Similarly, in a study by Johnson et al. (2012), only a small fraction of New England meat processors were operating at full capacity. One factor accounting for this situation was the labor shortage, a long-lasting problem even before the COVID-19 pandemic. The scarcity of skilled labor and the seasonality in the livestock industry (e.g., periods of low and high demands) constrained small slaughterhouses in New England (Johnson et al., 2012). Meat processing is a strenuous job because of its intensity and environment. Meat processing facilities typically have an unpleasant working environment. Workers need to deal with dangerous conditions, such as exposure to cutting tools (e.g., blades, saws, etc.) and working in cold temperatures to comply with food safety regulations. Also, meat-processing jobs are considered to be low-quality since workers need to perform repetitive work such as cutting, trimming, lifting, and stretching (Romanov et al., 2022). This situation, coupled with risks of injuries in the plants, makes attracting

more labor challenging for meat-processing enterprises (Romanov et al., 2022). Dias et al. (2020) also elaborate that the limited opportunities to develop meat-cutting skills aggravates the problem of retaining workers. Some meat processors reported having difficulties attracting and retaining employees, especially during hunting season. The result is similar to the findings of Partners (2009), who concluded that the meat-processing industry had a high turnover rate and faced difficulties recruiting skilled labor. Our findings are also consistent with Ijaz et al. (2021), who found that meat-packing facilities were forced to shut down due to the labor shortage caused by the COVID-19 outbreak.

Another potential obstacle to finding qualified workers is the sparse population in rural areas. The agricultural food industry competes with other industries for workers in these rural communities (White & Rahe, 2020). Meat processing does not require a high education, but does demand significant on-the-job training. As a result, it takes six months to a year for a meat processor to train a skilled worker. The high employee turnover rate not only increases the cost of labor for meat processors but also affects their productivity. Some interviewed meat processors in the sample cited that if they were to retain employees, they would have to offer them more competitive wages, between US$15 and US$20 per hour. Miller (2017) found that some processors paid their employees even when they were underutilized to avoid turnover. According to the U.S. Bureau of Labor Statistics (2021), the national average wage rate of employees in animal slaughtering and processing was US$15.31 per hour in 2021. This wage rate will not be sustainable for small- and very-small–scale meat processors, as it increases production costs and reduces profitability.

Two approaches can help meat processors solve labor issues. One is to reduce their dependence on labor by investing capital in automation measures. The USDA has launched two grant programs since the outbreak of COVID-19 to increase the capacity of local meat processors. The Meat and Poultry Inspection Readiness Grant helps small- and midsized meat and poultry processors improve their capacity and efficiency and obtain a Federal Grant of Inspection or participate in the

Cooperative Interstate Shipment program, depending on the state (USDA, 2021). Another program is the Meat and Poultry Processing Expansion Program, which funds meat processors to expand their capacity and efficiency (USDA Rural Development, 2022). Applicants of both programs can seek technical assistance through the Meat and Poultry Processing Capacity Technical Assistance Program. In addition, the State of Missouri provides a meat and poultry processing grant to support small-scale meat and poultry processing establishments. Fifteen of the 26 processors in this survey would like to receive assistance in applying for federal or state grant funding. We encourage state extension specialists to reach out to processors and provide workshops as well as training on grant information and writing tips to help them succeed in these programs.

Another approach is to provide free training to potential laborers through university extensions or cooperative agreements to reduce the cost of labor for small-scale meat processors. Universities or vocational schools can consider offering programs in training and certifications for meat processing. The same approach was suggested by Miller (2017). This could alleviate the burden of training new employees for small- and very-small–scale meat processors. For example, the University of Wyoming Extension provides free video courses for youth and the general public about processing beef, pork, and lamb carcasses into different meat cuts (Miller, 2021).

Regulation Compliance Is a Key Challenge to Small-Scale Meat Processors

Among the challenges small processors face, regulation was the second-most serious problem after the labor shortage. Regulations related to food safety and employee safety incur high compliance costs for processors (Charlebois & Summan, 2014). Ollinger and Moore (2009) found that it costs more for small and diversified meat processors than large firms to comply with food safety regulations. Half of the 26 processors in this survey were state-inspected, and the other half were federally inspected or custom-exempt facilities. The regulations are not only costly for small-scale meat processors to comply with but also complex to understand (Dimock et al., 2021).

It is critical for small processors to understand the regulations and build strong relationships with inspection agencies. Missouri is one of the states that offers a state inspection and participates in the Cooperative Interstate Shipping Program. Regular workshops, free training from the Missouri Department of Agriculture officials and extension specialists, and on-demand consultation would be helpful for these processors to understand the regulations, choose appropriate inspection programs, and reduce their compliance costs.

Local Meat Processors Compete with Other Processors and Retailers

As expected, the major competitors of the small- and very-small–scale meat processors were other meat processors. We found that these meat processors had competitors in the retail business, which was the most popular marketing channel for these processors, with in-store retail as the most important revenue source. The two most mentioned retail competitors were Walmart and ALDI. In addition, due to the processors' inability to provide a consistent supply to wholesalers and institutions, small processors are forced to be independent retailers (Kolodinsky et al., 2014).

However, when choosing the in-store retail method, processors also need to consider the retail economy of their region, such as the number of stores, population density in the store's location, and the market size and opportunities, because these factors will affect their potential sales and profitability directly (Kolodinsky et al., 2014). Walmart and other mass merchandisers have created new competition for smaller processor retailers and can dominate a local or regional market due to their cost efficiency. Given the competition from larger grocery stores and discount stores, meat processors can consider differentiating their products and services to attract potential customers and increase sales. Some have already diversified their products to non-meat production and retail to explore the economies of scope. In addition, exploring multiple retail channels, such as online orders through Facebook or a website, can be a means to reach more markets and customers.

Online Marketing and Social Media Advertising Could Be a New Trend

Although in-store retail is still the dominant marketing channel for small-scale meat processors, online and phone order retail has become more popular due to social distancing requirements since the outbreak of COVID-19 (Tyrväinen & Karjaluoto, 2022). More than 40% of the processors used phone order retail, and more than 20% used online orders. About 30% of their revenues were from these orders. However, many food retailers are worried that the consumer demand for online grocery shopping will disappear when the COVID-19 pandemic is over. Research has shown that consumer online purchase behavior might be sustained even after COVID-19 (East, 2022; Shen et al., 2022). Therefore, processors may want to continue using their online marketing tools to reach more markets that are out of their counties or states. University extension specialists can assist farmers in learning more online marketing strategies with inexpensive and reliable online marketing platforms.

Promoting Coordination between Producers and Processors Can Improve the Efficiency of the Local Food Supply Chain

A lack of adequate and stable supply was the third challenge that Missouri small-scale meat processors faced. The result was similar to the research findings of Johnson et al. (2012). The animal supply for many small processors is inconsistent—high in the hunting season but low in other periods (Gwin et al., 2013). Some processors have been contracted for their services for more than a year out due to the increased demand since the outbreak of COVID-19, while others still struggled to find enough animals. The average score concerning the supply shortage for all 26 processors was only 2 out of 5, which indicated that the supply was not a serious problem. One reason was the increased demand for local meat processing due to the shutdown of large processors and the disruption of the conventional meat supply chain early in the pandemic (Bina et al., 2022). Compared to large meat processors, small ones are more flexible and resilient to shocks and can adjust their production plans as well as meet the increasing demand in a relatively short period (Ma & Lusk, 2021).

Paradoxically, some livestock producers, especially producers of small ruminants such as goats and sheep, cannot locate reasonably priced processors. A study from New England showed that small-scale meat processors faced a similar issue, as there was a financial risk if they expanded their coverage to reach smaller livestock producers (Johnson et al., 2012). One reason was the high cost of offal disposal, and the other was the lack of information-sharing between producers and processors. Therefore, promoting sharing of information among the participants of the local meat supply chain through multiple channels is important to balance supply and demand while maintaining consistent supply. In fact, some meat processors already serve as mediators between consumers and producers. The meat processors' associations, producers' associations, or extension specialists can all promote information-sharing along with the local meat food system. In addition, vertical coordination among livestock producers, processors, wholesalers, and retailers is critical to address issues in production, processing, and distribution (Ding et al., 2014).

How to Sustain the Local Meat System Over the Long Term

Smaller meat enterprises are also restricted by their distribution and marketing processes because they target niche markets (Hinrichs, 2003). Their market size depends on the population where their facility is located. Thus, meat processors need to find ways to sustain their businesses, especially amid the consolidation of larger plants in the meat industry (Hendrickson et al., 2020). Our study indicates that Missouri meat processors performed better during the post-pandemic era compared to the pre-pandemic period. Approximately 76% believed their business was in more manageable condition than before the COVID-19 pandemic. Maintaining the growth of the industry over the long run requires some consideration. One strategy might be to go beyond their own local supply chain and coordinate regionally for a greater scale. Increased consumer demand was the driving force for growth during COVID-19 due to the disruption of the conventional supply chain. Therefore, strategies to increase customer reten-

tion are essential to maintaining the industry's success.

Small- and very-small–scale meat processors could also utilize governmental financial aid to improve the disrupted locally sourced meat supply chain. The American Rescue Plan funds allocated by the Biden-Harris Action Plan open a new opportunity for independent meat processors to develop processing capacity, increase diversity in the meat and poultry products, and provide health, safety, and training for workers (USDA, 2021). This aid will not only help meat processors' competitiveness with large players in the industry but also increase their resiliency in the new era after the COVID-19 pandemic.

Conclusions

Local food systems are vital to boosting the rural economy, improving community well-being, and sustaining the environment. Missouri has participated in developing locally produced food through the Food, Beverage, and Forest Products Manufacturing Initiative. One of the program's objectives is to support the production of locally grown meat and value-added activities by small- and medium-sized producers and processors. Nevertheless, smaller meat processors face labor and regulation challenges. This study sought to understand the characteristics of small-scale meat processors and explore the challenges they faced in promoting the local food systems.

Our study is among the first to explore the needs of small- and very-small-scale meat processors in the state of Missouri. Through various methods of data collection (e.g., online and mail surveys and interviews) of 26 small-scale meat processors, this study yielded interesting findings. Some aspects that prevented smaller meat processing firms from growing their business were related to labor shortages, regulations, inconsistent supply, access to tools and equipment, and market demand. Thus, we proposed integrated alternatives to address these issues, including developing comprehensive marketing strategies such as online marketing (e.g., through social media or a website) and labor training. We also recommend that smaller meat processing facilities utilize opportunities to obtain financial support from both the state (e.g., Missouri Department of Agricul-

ture) and the federal government (e.g., USDA grants) to expand their plants and invest in equipment. To help sustain a consistent supply and marketing of locally sourced meats, it is also important for smaller meat enterprises to create partnerships with producers and consider vertical coordination. Investment in more advanced technology to save money on labor may not be financially feasible for smaller processors. The use of mobile slaughter units may provide an opportunity for processors to reach local producers who are not able to transport their animals to processing facilities. This can also contribute to maintaining an adequate supply of livestock that need to be processed to maintain the high profitability of the businesses.

One limitation of this study is the small number of responses we received, which may affect the representativeness of our sample. Therefore, careful consideration should be given to generalizing the findings. This also opens possibilities for future studies to develop more integrated work in obtaining more samples and investigation, using the secondary data from these processors' websites, social media, or printed materials.

This study focuses on the challenges that limit small- and very-small–scale meat processors in Missouri. Future work that is not limited to policy research exploring initiatives and interventions to support smaller processors could be directed to address those challenges. Since this study is not specifically directed at exploring locally grown meat marketing, future studies may fill the gap by examining the roles of farmers markets, meat processor associations, and community supported agriculture (CSA) operations in improving the marketing and distribution processes of locally sourced meats. It is also vital to understand the adaptability and resilience of small-scale meat processors during the COVID-19 pandemic and the outbreak's effect on the supply chain in the meat industry.

References

Allen, P. (2010). Realizing justice in local food systems. *Cambridge Journal of Regions, Economy and Society*, *3*(2), 295–308. https://doi.org/10.1093/cjres/rsq015

Balagtas, J. V., & Cooper, J. (2021). The impact of COVID-19 on United States meat and livestock markets. *Choices*, *36*(3), 1–10. https://www.jstor.org/stable/27098608

Bina, J. D., Tonsor, G. T., Schulz, L. L., & Hahn, W. F. (2022). Regional and plant-size impacts of COVID-19 on beef processing. *Food Policy*, *108*, Article 102247. https://doi.org/10.1016/j.foodpol.2022.102247

Charlebois, S., & Summan, A. (2014). Abattoirs, meat processing and managerial challenges: A survey for lagging rural regions and food entrepreneurs in Ontario, Canada. *International Journal of Rural Management*, *10*(1), 1–20. https://doi.org/10.1177/0973005214526504

Darby, K., Batte, M. T., Ernst, S., & Roe, B. (2008). Decomposing local: A conjoint analysis of locally produced foods. *American Journal of Agricultural Economics*, *90*(2), 476–486. https://doi.org/10.1111/j.1467-8276.2007.01111.x

Dias, N. F., Tirloni, A. S., dos Reis, D. C., & Moro, A. R. P. (2020). Risk of slaughterhouse workers developing work-related musculoskeletal disorders in different organizational working conditions. *International Journal of Industrial Ergonomics*, *76*, Article 102929. https://doi.org/10.1016/j.ergon.2020.102929

Dimock, M. R., Riggle, C., Hollander, A., Huber, P., & Tomich, T. (2021). A new era for meat processing in California? Challenges and opportunities to enhance resilience. *eScholarship: Open access publications from the University of California*. https://escholarship.org/uc/item/4r723374

Ding, M. J., Jie, F., Parton, K. A., & Matanda, M. J. (2014). Relationships between quality of information sharing and supply chain food quality in the Australian beef processing industry. *International Journal of Logistics Management*, *25*(1), 85–108. https://doi.org/10.1108/IJLM-07-2012-0057

East, R. (2022). Online grocery sales after the pandemic. *International Journal of Market Research*, *64*(1), 13–18. https://doi.org/10.1177/14707853211055047

Feenstra, G. W. (1997). Local food systems and sustainable communities. *American Journal of Alternative Agriculture*, *12*(1), 28–36. https://doi.org/10.1017/s0889189300007165

Gwin, L. (2009). Scaling-up sustainable livestock production: Innovation and challenges for grass-fed beef in the U.S. *Journal of Sustainable Agriculture*, *33*(2), 189–209. https://doi.org/10.1080/10440040802660095

Gwin, L., Thiboumery, A., & Stillman, R. (2013). *Local meat and poultry processing: The importance of business commitments for long-term viability* (Economic Research Report No. 150). U.S. Department of Agriculture Economic Reearch Service. https://www.ers.usda.gov/publications/pub-details/?pubid=45095

Helmer, J. (2020, July 20). *COVID-19 is highlighting an old problem: The lack of meat processing plants*. FoodPrint. https://foodprint.org/blog/meat-processing-plants/

Hendrickson, M. K., Howard, P. H., Miller, E. M., & Constance, D. H. (2020). *The food system: Concentration and its impacts: A special report to the Family Farm Action Alliance*. https://farmaction.us/wp-content/uploads/2020/11/Hendrickson-et-al.-2020.-Concentration-and-Its-Impacts-FINAL.pdf

Hinrichs, C. C. (2003). The practice and politics of food system localization. *Journal of Rural Studies*, *19*(1), 33–45. https://doi.org/10.1016/S0743-0167(02)00040-2

Hobbs, J. E. (2021). The Covid-19 pandemic and meat supply chains. *Meat Science*, *181*, Article 108459. https://doi.org/10.1016/j.meatsci.2021.108459

Ijaz, M., Yar, M. K., Badar, I. H., Ali, S., Islam, M. S., Jaspal, M. H., Hayat, Z., Sardar, A., Ullah, S., & Guevara-Ruiz, D. (2021). Meat production and supply chain under COVID-19 scenario: Current trends and future prospects. *Frontiers in Veterinary Science*, *8*, Article 660736. https://doi.org/10.3389/fvets.2021.660736

Jie, F., Parton, K. A., & Cox, R. J. (2013). Linking supply chain practices to competitive advantage: An example from Australian agribusiness. *British Food Journal*, *115*(7), 1003–1024. https://doi.org/10.1108/BFJ-10-2010-0181

Johnson, R. J., Marti, D. L., & Gwin, L. (2012). *Slaughter and processing options and issues for locally sourced meat*. (Report LDP-M-216-01). USDA Economic Research Service. https://www.ers.usda.gov/publications/pub-details/?pubid=37460

Kolodinsky, A. J., Roche, E., Desai, S., & Campbell, E. (2014, July 27–27). *Are independent retailers a viable distribution channel for local foods? Evidence from Vermont* [Paper presentation]. 2014 Agricultural and Applied Economics Association Annual Meeting, Minneapolis, MN. https://ageconsearch.umn.edu/record/170306/?ln=en

Ma, M., & Lusk, J. L. (2021). *Concentration and resilience in the US meat supply chains.* (NBER Working Paper 29103). National Bureau of Economic Research. https://doi.org/10.3386/w29103

Marsden, T. (2004). The quest for ecological modernisation: Re-spacing rural development and agri-food studies. *Sociologia Ruralis*, *44*(2), 129–146. https://doi.org/10.1111/j.1467-9523.2004.00267.x

Mason, A., Korostynska, O., Cordova-Lopez, L. E., Esper, I., Romanov, D., Ross, S., Takacs, K., & Haidegger, T. (2021). Meat factory cell: Assisting meat processors address sustainability in meat production. *21st IEEE International Symposium on Computational Intelligence and Informatics, CINTI 2021 - Proceedings*, 103–108. https://doi.org/10.1109/CINTI53070.2021.9668392

Miller, S. (2017). *Opportunities and barriers to growing Michigan's local food system: The case of meat processing*. (Staff Paper 2017-001). Michigan State University Agriculture, Food and Resource Economics. https://www.canr.msu.edu/resources/growing-michigans-local-food-system-the-case-of-meat-processing

Miller, S. (2021). *UW extension free video course details processing carcasses into different meat cuts*. University of Wyoming AgNews. https://uwagnews.com/2021/03/19/uw-extension-free-video-course-details-processing-carcasses-into-different-meat-cuts/

Missouri Agricultural and Small Business Development Authority. (2021). *2021 economic contribution study of Missouri agriculture and forestry: November 2021*. https://agriculture.mo.gov/economicimpact/county-pdf/MissouriAgForestryEconomicContributionStudy.pdf

Missouri Department of Agriculture. (2021). *Missouri agriculture's economic impact*. https://agriculture.mo.gov/economicimpact/

Okpala, C. O. R., Nwobi, O. C., & Korzeniowska, M. (2021). Towards delineating butchers' knowledge base, challenges encountered, and enhancement prospects of meat inspection processes: A cattle slaughterhouse case analysis. *Meat Technology*, *62*(1), 41–56. https://doi.org/10.18485/MEATTECH.2021.62.1.5

Ollinger, M., & Moore, D. (2009). The direct and indirect costs of food-safety regulation. *Review of Agricultural Economics*, *31*(2), 247–265. http://www.jstor.org/stable/30224860

Partners, J. (2009). *The business case for training investment in Ontario's meat processing sector.* Ontario Independent Meat Processors. https://www.meatpoultryon.ca/wp-content/uploads/2016/09/09-12-01-Business-Case-For-Training-Investment-in-Ontarios-Meat-Processing-Sector.pdf

Peters, C. J., Bills, N. L., Wilkins, J. L., & Fick, G. W. (2009). Foodshed analysis and its relevance to sustainability. *Renewable Agriculture and Food Systems*, *24*(1), 1–7. https://doi.org/10.1017/S1742170508002433

Pretty, J., Sutherland, W. J., Ashby, J., Auburn, J., Baulcombe, D., Bell, M., Bentley, J., Bickersteth, S., Brown, K., Burke, J., Campbell, H., Chen, K., Crowley, E., Crute, I., Dobbelaere, D., Edwards-Jones, G., Funes-Monzote, F., Godfray, H. C. J., Griffon, M., … Pilgrim, S. (2010). The top 100 questions of importance to the future of global agriculture. *International Journal of Agricultural Sustainability*, *8*(4), 219–236. https://doi.org/10.3763/ijas.2010.0534

Richards, S., & Vassalos, M. (2020). COVID-19 amplifies local meat supply chain issues in South Carolina. *Journal of Agriculture, Food Systems, and Community Development*, *10*(1), 191–195 https://doi.org/10.5304/jafscd.2020.101.001

Romanov, D., Korostynska, O., Lekang, O. I., & Mason, M. (2022). Towards human-robot collaboration in meat processing: Challenges and possibilities. *Journal of Food Engineering*, *331*, Article 111117. https://doi.org/10.1016/j.jfoodeng.2022.111117

Schweihofer, J., Wells, S., Miller, S., & Pirog, R. (2014). *Michigan meat processing capacity assessment final report*. MSU Center for Regional Food Systems. https://www.canr.msu.edu/resources/mi-meat-processing-report

Shen, H., Namdarpour, F., & Lin, J. (2022). Investigation of online grocery shopping and delivery preference before, during, and after COVID-19. *Transportation Research Interdisciplinary Perspectives*, *14*, Article 100580. https://doi.org/10.1016/j.trip.2022.100580

Swenson, D. (2009). *Investigating the potential economic impacts of local foods for southeast Iowa*. Leopold Center for Sustainable Agriculture at Iowa State University. https://www.leopold.iastate.edu/files/pubs-and-papers/2010-01-investigating-potential-economic-impacts-local-foods-southeast-iowa.pdf

Thilmany, D., Canales, E., Low, S. A., & Boys, K. (2021). Local food supply chain dynamics and resilience during COVID‐19. *Applied Economic Perspectives and Policy*, *43*(1), 86–104. https://doi.org/10.1002/aepp.13121

Thompson, D. (2012). *Expanding locally sourced beef in Northern Ontario through the co-operative model* [Master's MRE, Cape Breton University]. Academia. https://nordikinstitute.com/wp-content/uploads/2021/05/thompsond.final_.pdf

Tyrväinen, O., & Karjaluoto, H. (2022). Online grocery shopping before and during the COVID-19 pandemic: A meta-analytical review. *Telematics and Informatics*, *71*, Article 101839. https://doi.org/10.1016/j.tele.2022.101839

U.S. Bureau of Labor Statistics. (2021, May). *Occupational employment and wage statistics: 51-33022 meat, poultry, and fish cutters and trimmers*. https://www.bls.gov/oes/current/oes513022.htm

U.S. Department of Agriculture [USDA]. (2021, June 21). *USDA invests $55.2 million in grants to increase capacity and expand access in meat and poultry inspection operations*. https://www.usda.gov/media/press-releases/2021/06/21/usda-invests-552-million-grants-increase-capacity-and-expand-access

USDA Economic Research Service [ERS]. (2021, May 31). *The meatpacking industry in rural America during the COVID-19 pandemic*. https://www.ers.usda.gov/covid-19/rural-america/meatpacking-industry

USDA Food Safety and Inspection Service [FSIS]. (2022, April 25). *Custom exempt review process revision 1*. http://www.fsis.usda.gov/policy/fsis-directives/8160.1

USDA NASS. (2022). *2022 state agriculture overview: Missouri*. https://www.nass.usda.gov/Quick_Stats/Ag_Overview/stateOverview.php?state=MISSOURI

USDA Rural Development. (2022). *Meat and poultry processing expansion program*. Retrieved February 15, 2023, from https://www.rd.usda.gov/programs-services/business-programs/meat-and-poultry-processing-expansion-program

U.S. Small Business Administration. (2022, December 19). *Table of size standards*. https://www.sba.gov/document/support-table-size-standards

White, M., & Rahe, M. (2020). *Characteristics of Missouri's food, agriculture and forestry workforce*. University of Missouri Extension. https://extension.missouri.edu/publications/mx52

The experience of Vermont local food businesses during the first year of the COVID-19 pandemic

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Abstract

The COVID-19 pandemic tested the resilience of food system actors at all levels and across all geographies. This study focuses on the experience of Vermont local food businesses by combining two surveys conducted in the first half of 2021: one of foodservice operations that procure food locally and one of Vermont farms that sell directly to consumers. We analyzed descriptive statistics, open responses, and conducted Kruskal-Wallis rank sum tests to assess which factors were related to businesses' financial statuses before and since the pandemic. Pre-pandemic financial status was related with business type, whether the business went on to receive emergency funds, and financial status since the pandemic. The only significant factor for financial status since the pandemic was prepandemic financial status. We close with recommendations for policy and future research.

Keywords

COVID-19, Pandemic, Vermont, Foodservice, Restaurants, Farms, Direct Sales, Local Food, Resilience, Emergency Funding

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Introduction

Over the past 20 years, a wide variety of disciplines have embraced the concept of resilience, which is broadly understood as a system's ability to respond to major shocks (Behzadi et al., 2017; Béné, 2020; Béné & Doyen, 2018; Magis, 2010; Schipanski et al., 2016; Tendall et al., 2015; Toth et al., 2016; Worstell & Green, 2017). Food systems research in particular has moved toward resilience in light of climate change, natural disasters, and the COVID-19 pandemic (Béné, 2020; Boyacı-Gündüz et al., 2021; Ericksen, 2008; Food and Agriculture Organization [FAO] of the United Nations, 2013; Tendall et al., 2015). This paper begins by summarizing insights from food systems resilience research before and since the COVID-19 pandemic. We then test how resilience indicators from the literature apply to a specific group of food systems actors: Vermont foodservice operations and farms selling directly to consumers.

Tendall et al. (2015) defined food system resilience as "the capacity over time of a food system and its units at multiple levels, to provide sufficient, appropriate and accessible food to all, in the face of various and even unforeseen disturbances" (p. 19). Scholars have identified many potential indicators of food system resilience. These include ecologically sustainable agricultural practices (Schipanski et al., 2016; Worstell & Green, 2017); diversity and redundancy in the food supply chain (Behzadi et al., 2017; Béné, 2020; Schipanski et al., 2016; Worstell & Green, 2017); sufficient reserves and physical infrastructure to withstand disturbance (Baum et al., 2015; Worstell & Green, 2017); local self-organization and independence of food supply chain actors (Baum et al., 2015; Schipanski et al., 2016; Worstell & Green, 2017); flexibility and creativity of food system actors (Béné, 2020; Borges-Méndez & Caron, 2019; Schipanski et al., 2016; Worstell & Green, 2017); strong relationships among and between food supply chain actors (Béné, 2020; Worstell & Green, 2017); financial resources (Béné, 2020); social and economic equality (Béné, 2020; Borges-Méndez & Caron, 2019; Schipanski et al., 2016); and the ability or willingness to transform (Béné & Doyen, 2018; Worstell & Green, 2017).

The resilience framework is not without its detractors. Scholars including Joseph (2013) and Borges-Méndez and Caron (2019) critique dominant ideas of resilience for reinforcing neoliberal and colonialist modes of governmentality. The theme uniting these critiques is to consider the role of government in system resilience. As we move to the case of COVID-19 and the food system, we will keep government in frame and examine how its actions or inactions promoted or prevented food system resilience.

Food System Resilience During the COVID-19 Pandemic

Resilience consists of capacities that are built and strengthened in times of stability, but the resilience of a system can only be assessed once it has experienced a shock. The profound and protracted crisis that is the COVID-19 pandemic has inspired vast amounts of food system resilience research. Yet the field is still nascent, especially when it comes to assessing the resilience of food businesses.

Foodservice

Many published studies of the impact of COVID-19 on restaurants, foodservice, and hospitality have examined business operator perspectives in the first several months of the pandemic, when many governments across the globe had imposed lockdown states that made conventional business impossible (Farrer, 2020; Gkoumas, 2021; Madeira et al., 2021; Neise et al., 2021). Key findings from these studies include the desire for government assistance and public health guidance (Gkoumas, 2021; Madeira et al., 2021); the benefit of fiscal stability going into the pandemic (Neise et al., 2021); and the importance of offering takeout and delivery to survive, along with the difficulty of sustaining a business on dine-out options alone (Farrer, 2020; Neise et al., 2021). These early foodservice studies are limited in utility: they assess owners' perceptions of their business's future without following up about how their expectations played out.

Several studies take a backward look at the results of business adaptations and experiences during the first pandemic spring. A mixed-methods study by Brizek et al. (2021) surveyed and interviewed independent restaurant operators in South Carolina in May and June 2020, when restaurants

were allowed to reopen indoor dining at limited capacity. Nearly 25% of restaurant operators were not able to reopen their businesses, and the remaining 75% were operating at reduced capacity supplemented by takeout or delivery. Many were interested in government aid programs, but most could not rehire enough employees to be eligible for Payroll Protection Program (PPP) loan forgiveness. In one of the few articles on institutional foodservice during the COVID-19 pandemic, Connolly et al. (2021) examined Connecticut public school meal programs in the spring of 2020 and identified four main factors for success: tailoring programs to community needs, facilitating participation, using partnerships to coordinate efforts, and building flexible programs.

Local Agriculture

Farm businesses, unlike foodservice businesses, were not forced to close during lockdowns, and several studies of small, diversified, organic, and/or agroecological farms suggest that these operations fared well during the pandemic's first wave (Mastronardi et al., 2021; Perrin & Martin, 2021; Tittonell et al., 2021). Contributing resilience factors identified by these studies include processing the product on the farm (Perrin & Martin, 2021); direct sales and/or short supply chains (Mastronardi et al., 2021; Perrin & Martin, 2021; Tittonell et al., 2021); nimbleness in shifting between sales channels (Mastronardi et al., 2021; Perrin & Martin, 2021); strong collaborative local food networks (Tittonell et al., 2021); and government support (Tittonell et al., 2021).

Another group of studies takes a broader look at local food systems and short supply chains during the COVID-19 pandemic. Nemes et al. (2021) surveyed alternative and local food system experts from 13 countries and found that these systems were able to respond to the pandemic with innovation, though smallholder access to e-commerce varied among countries. Thilmany et al. (2020) reviewed regional and local food systems in the United States during the first 6 months of the pandemic; they found that while school and restaurant closures created a major market disruption, e-commerce sales of local food exploded. Yet an analysis of Washington, D.C., farmers market sales data

using a difference in differences model to compare winter and spring 2020 sales to those in 2019 identified negative impacts on direct food sales due to COVID-19 (O'Hara et al., 2021). O'Hara et al. (2021) found that even those markets that did open and remained open throughout the first pandemic spring experienced a profound drop in sales; only vendors selling dairy, meat, and seafood increased sales year over year.

COVID-19 Research Summary

The field of COVID-19 food systems research is at the same time already immense and still lacking. There are many published studies looking at the first 3 to 6 months of the pandemic, but the COVID-19 pandemic has been one continuous multiyear crisis, and individuals, businesses, and communities have had to attempt recovery while the crisis is ongoing. Resilience research needs to continue past the eventual end of the pandemic to assess how actions throughout this period have affected the stability of the food system.

The scale of the COVID-19 pandemic has also meant that some system components have been overlooked by research, and some related actors have not been considered alongside each other. There have been few whole-picture studies of the experiences of farms selling direct to consumers, and studies of foodservice operations during COVID-19 have not focused on those engaged in local procurement. Moreover, while consumers purchase local foods both by buying raw ingredients from farms and by patronizing restaurants and cafeterias that use local ingredients, the two sectors have not been considered alongside each other. This study will look at foodservice operations procuring local food and farms selling directly to consumers to get a fuller picture of the experience of local food vendors in Vermont during the pandemic.

Vermont as a Special Case

Vermont is an interesting case for both alternative food systems and its experience during the pandemic. Vermont is home to many local food initiatives. Organizations like Vermont Farm to Plate, the Vermont Fresh Network, Center for an Agricultural Economy, and Farm to Institution New

England advocate and organize for local agriculture to reach consumers through both direct purchasing and foodservice. Outgoing senator Patrick Leahy has been a long-time champion of farm-to-school programs at the federal level, and the Vermont state legislature recently passed a local foods purchasing initiative for public schools (An Act Relating to Equitable Access to a High-Quality Education through Community Schools, 2021).

Vermont fared well during the first year of the COVID-19 pandemic compared to the rest of the United States, with robust leadership from state government and low case and death numbers (Deliso, 2020). The Vermont state government sponsored several relief initiatives for food businesses, and a coalition of food access and business development advocates assembled the FEMA-funded Vermont Everyone Eats program that paid for food insecure individuals to eat meals from Vermont restaurants (Agency of Agriculture, Food and Markets, n.d.; Agency of Commerce and Community Development, n.d.; Bianchi et al., 2020).

Between well-established and supported short local food supply chains and Vermont's low COVID-19 case numbers, Vermont's local food economy should have been well-positioned to weather the pandemic. This study will examine Vermont food businesses selling local food to consumers as a special case. To what extent and how were these businesses set up for success? And what factors, if any, were related with their economic wellbeing a year into the COVID-19 pandemic?

Methods

Survey Questions, Sampling, and Collection
This paper combines two surveys conducted by University of Vermont (UVM) researchers under Agricultural Research Service grants. The first survey focused on foodservice operations in the state of Vermont. We wrote some survey questions to align with those on other surveys of Vermont food system actors during COVID-19 conducted by our UVM colleagues. Other questions came out of interviews we conducted with owners or managers of Vermont foodservice operations in the second half of 2020. Colleagues in the broader UVM COVID-19 food system research team reviewed

multiple drafts of the survey text and tested the survey in Qualtrics.

In April 2021, we distributed the survey via Qualtrics to the culinary members of the Vermont Fresh Network, a nonprofit organization that connects farmers, chefs, and consumers in the state of Vermont. The culinary member email list (n=150) is composed of owners, managers, and/or chefs at Vermont restaurants, caterers, prepared food sections of grocery and specialty stores, and institutional foodservice operations. We followed up with direct email reminders to this list in May and June of 2021. This effort yielded 22 valid responses. In an attempt to increase the survey response, we reached out to the Vermont Independent Restaurant Association and the Main Street Alliance, both of which shared our survey link in their summer 2021 newsletters; however, this only yielded three additional responses. In total, we received 20 complete responses and five partial responses to the foodservice survey. We expected a low response rate due to the demands of foodservice businesses, compounded by spring 2021 restaurant staffing shortages.

We developed the farm survey questions through a constant comparative analysis of transcripts from six webinars. UVM Extension hosted these webinars in the spring of 2020 to help farmers adjust to shifting conditions and regulations at the start of the pandemic. Team members used the themes identified in the coding process to write the survey. We consulted with the broader UVM COVID-19 food systems research team to ensure common language across projects. We also hired 10 farmers from multiple sectors to review the draft survey. We distributed the final survey via email, social media, paid advertisements on Front Porch Forum (a website that hosts neighborhood-specific forums across Vermont), and professional networks. This outreach totaled more than 12,000 emails and 90,000 paid "impressions," and resulted in 135 valid responses. For this study, we narrowed the respondents to those who sold products directly to consumers in 2019 and/or in 2020 (n=111). Eligible sales avenues included U-Pick, farm stands or farm stores, community supported agriculture, farmers markets, sales to SNAP or 3SquaresVT users, and website or e-commerce sales. We coded

the business types to distinguish between those farms with an onsite farm store or farm stand and those without.

The foodservice and farm surveys shared several similar questions, and we were able to combine these portions of the two datasets in RStudio, creating a total dataset of 136 businesses. The shared questions fell into three main sections: through which avenues the businesses sold food both before and since the COVID-19 pandemic; where businesses turned for funding and information during the COVID-19 pandemic; and questions on the financial status of the business before and since COVID-19. UVM Extension associate professor Mark Canella developed these latter two questions, which sorted business performance into four main categories: economically thriving, economically viable, sustainable (due to other sources of income or equity), and vulnerable. While this self-reported categorization is not as precise as direct financial information, the UVM COVID-19 food systems research team elected to use these questions across all surveys because they give a sense of business status without requiring significant effort from the respondent. The definitions differed slightly between the two surveys, and the farm survey divided the "sustainable" category into two sections (Table 1). For this study we recoded these

two "sustainable" categories into one encompassing all nonviable operations that were able to continue operations by relying on other funds.

Conceptual Model

We set out to investigate two questions: were these Vermont local food businesses selling food to consumers resilient in the first year of the COVID-19 pandemic, and if so, what factors impacted that resilience? We used the two financial status questions as proxies for business resilience. We considered financial status before the pandemic to be a component of resilience potential and financial status since the pandemic to summarize how the business weathered the prior year. As the financial status questions were ordinal (thriving, viable, sustainable, vulnerable), we used the Kruskal-Wallis rank sum test to examine the relationship between financial status before and since the pandemic with each independent variable in our conceptual model. Because the combined dataset is weighted toward the farm survey, we supplemented these tests with an in-depth review of the descriptive statistics and the open responses to the foodservice survey.

We selected the independent variables for the analysis based on our review of the literature (Figure 1). Across the diverse early studies of

Table 1. Financial Status Definitions Across Both Surveys

Combined Survey Category	Foodservice Survey	Farm Survey
Economically thriving	The operation exceeds minimum fair labor and wage standards for all owners and employees, provides benefits (e.g. health insurance), covers all costs, and generates a profit.	The farm exceeds minimum fair labor and wage standards for all owners and employees, provides health insurance, covers all costs, and generates a profit.
Economically viable	The operation has the capacity to pay all employees average industry wages, cover all costs, and generate a profit.	This business has the capacity to pay family labor at the average agricultural wage, cover all costs, and generate a profit.
Sustainable	This operation does not meet the "economically viable" definition (above) but is sustainable due to the presence of built-up equity in savings, property, and owned assets, or is a nonprofit organization raising money through grants, donations, and other unearned income.	*Sustainable—Built Equity:* This business is not "economically viable" but is sustainable due to the presence of built-up equity in savings, property, and owned assets. *Sustainable—Other Income:* This business is not "economically viable" but is sustainable due to the presence of other non-farm/food business income.
Vulnerable	The operation is not "economically viable" and does not have sufficient sources of other income or built-up equity, earned or unearned.	This business is not "economically viable" and does not have sufficient sources of other income or built-up equity.

COVID-19's impact on agriculture and foodservice businesses worldwide, the food system resilience indicator mentioned the most is the flexibility and creativity of food system actors (Brizek et al., 2021; Connolly et al., 2021; Duarte Alonso et al., 2020; Farrer, 2020; Mastronardi et al., 2021; Neise et al., 2021; Nemes et al., 2021; Perrin & Martin, 2021; Thilmany et al., 2020). We assessed the adaptability of businesses in our study in two ways. We created binary variables for whether businesses stopped or started one or more sales modes during the pandemic to test the flexibility of the customer-facing end of the business. We predicted that stopping sales modes would be negatively related with financial status before and since the pandemic, whereas starting new sales modes would have a positive relationship. We examined the flexibility of internal operations using the questions from the food-service survey about what actions businesses took to support employees. Due to the small size of the foodservice sample, we chose to examine cross-tabulations of each employee action question as well as the total number of actions taken with

financial status before and since COVID-19, and we turned to open responses addressing this topic.

Because the resilience literature also empha-sizes the importance of selling across a variety of markets (Béné, 2020; Worstell & Green, 2017), we created variables counting total modes of sale before and since the pandemic. We hypothesized that businesses selling across a diversity of markets were in better shape going into the pandemic, and that the number of markets through which they sold food since the pandemic contributed to their financial resilience.

In the COVID-19 literature, government response and assistance come up again and again, whether studies found government response to the pandemic to be helpful (Gkoumas, 2021; Thilmany et al., 2020; Tittonell et al., 2021), slow (Farrer, 2020; Madeira et al., 2021), or insufficient for addressing the problems that food businesses faced (Brizek et al., 2021). We created a binary variable for whether a business received funding to judge the impact of the government's fiscal assistance and to see whether funding favored businesses

Figure 1. Conceptual Model
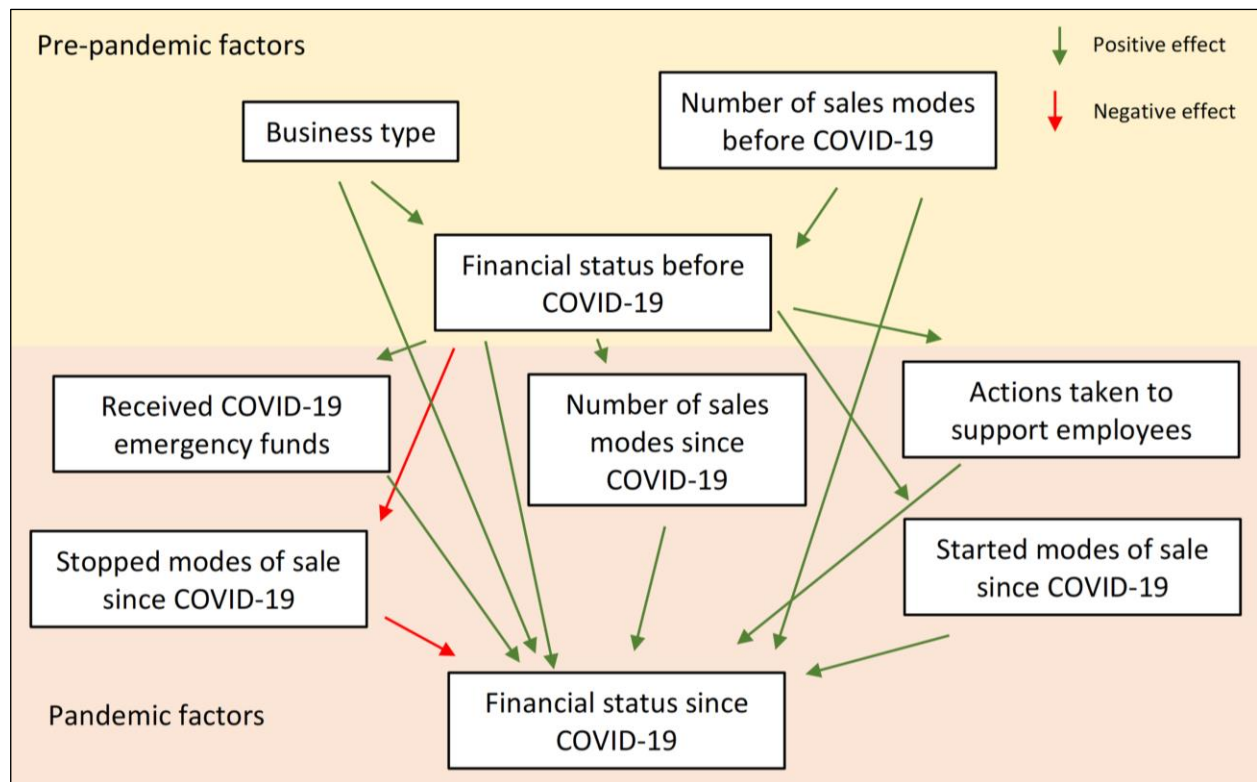
who were doing well before the pandemic started.

We also created a variable for business type with three options: foodservice, farms with farm stands or stores, and farms without farm stands or stores. We hypothesized that foodservice businesses faced worse impacts from the pandemic than farms because lockdowns prohibited regular foodservice operations. We also hypothesized that farms with farm stores were more resilient than those without, as Perrin and Martin (2021) found that farms that managed their own sales were especially nimble in response to the pandemic.

Finally, we tested the relationship between financial status before and financial status since the pandemic. In using financial status before the pandemic as a proxy for resilience potential, and finan-cial status since the pandemic as a proxy for actual resilience, we hypothesized that the strongest relationship would be between these two variables.

Results

The combined sample is heavily weighted toward the farm survey: out of 136 total observations, 25 are foodservice businesses and 111 are farms (Table 2). This imbalance is especially true when looking at the financial status questions. Between non-response and entry errors, 10 foodservice businesses did not answer the question about financial status before COVID-19 (compared to two farms). Six did not answer the question about financial status since COVID-19 (along with five farms). Of the foodservice businesses that did report their financial status before COVID-19, seven were thriving, six were viable, and two were sustainable due to other funds. The majority of farms reported as either viable or sustainable pre-COVID, with five thriving and three vulnerable. Both more farms (n=10) and foodservice businesses (n=3) self-reported as vulnerable since COVID, and just two farms and three foodservice businesses described themselves as thriving. Still, the large majority of respondents self-reported as either viable (n=35) or sustainable due to other funds (n=72). As predicted, there was a significant relationship (p<0.0001) between financial status before COVID-19 and financial status since COVID-19; businesses that were doing well before the pandemic were more likely to be doing well since the pandemic's onset (Table 3).

Foodservice businesses were significantly more likely than farms to have been doing well before

Table 2. Sample Description

Business Type	Count
Restaurant	8
Caterer	2
Restaurant & caterer	3
Hospital/health care foodservice	1
K–12 school foodservice	1
Grocery store or supermarket	2
Festival food vendor	1
Bakery & baking school	1
Restaurant/caterer/grocery store/ specialty market	1
Foodservice—no response	5
Farm & farm store	70
Farm	41
Total	**136**

Table 3. Comparison of Financial Status Before and Since COVID-19

Financial status since COVID-19	Since COVID-19 totals	Financial status before COVID-19			
		Thriving	Viable	Sustainable	Vulnerable
Thriving	4	3	1	0	0
Viable	34	5	25	4	0
Sustainable	69	4	9	55	1
Vulnerable	13	0	3	8	2
Before COVID-19 Totals		**12**	**38**	**67**	**3**

Note. Kruskal-Wallis H(2)=44.358, df=3, p<0.0001
N=120; 16 survey participants did not respond to either or both questions.

the pandemic ($p<0.0001$, Table 4). Nearly half of the foodservice operations that reported their financial wellbeing before COVID-19 were thriving, whereas 61% of farms sustained their businesses on other income or built equity even before the pandemic. However, there was no difference ($p=0.66$) between

Table 4. Financial Status Before COVID-19 by Business Type

Financial status before COVID-19	Business Type			
	Foodservice		Farm	
	Count	Percentage	Count	Percentage
Thriving	7	47%	5	5%
Viable	6	40%	34	31%
Sustainable	2	13%	67	61%
Vulnerable	0	0%	3	3%

Note. Kruskal-Wallis H(2)=20.246, df=1, $p<0.0001$
$n=124$; 12 survey participants did not list their financial status before COVID-19

farms with a farm store or stand and those without. When turning to financial status since the start of the COVID-19 pandemic, the relationship between business type and financial status disappeared: whether the business was a foodservice operation or a farm had no relationship ($p=0.22$) with financial status since COVID-19.

The number of sales modes varied across businesses both before and since the pandemic. Most businesses sold products using between one and five sales modes, with many ($n=20$ pre-pandemic; $n=23$ since pandemic) selling through six or more modes. A combined restaurant, caterer, and market in the foodservice sample reported that they "felt fortunate to be diversified before the pandemic hit." Whereas prior to the pandemic the foodservice side of their business was their major sales driver, the retail side of the business exploded during lockdown and kept the operation afloat. But when looking at the Kruskal-Wallis tests for the combined sample of both foodservice and farms, diversity among sales modes was not a significant player in financial status before or since COVID-19.

The pandemic required most foodservice businesses to change the ways they sold food to customers. The majority stopped ($n=13$) and/or started ($n=16$) one or more modes of sale. Most farms did not change how they sold food, but a good number still stopped ($n=29$) and/or started ($n=42$) at least one mode of sale. Contrary to our hypothesis, and to the literature's emphasis on adaptability, our analysis of the combined sample found no relationship between stopping or starting sales modes and financial status for either time period.

Foodservice operations varied widely in the internal changes they made to protect and help their employees through the pandemic (Table 5). Many operations made lower-cost accommodations like providing PPE, allowing for flexible schedules and sick leave, and offering free or discounted food. Fewer made higher-cost adjustments like offering testing or hazard pay. In some cases, the fiscal reality of the foodservice business made it hard to keep staff employed. One caterer reported:

> We unfortunately had to bring our staff down to just a few people and had to constantly shift gears to try to bring in any source of revenue. It was similar to an entire year of starting a new business, over and over.

Some tools for employee wellbeing were out of employers' hands. One respondent complained that in Vermont restaurant employees were not classified as frontline workers and therefore were not able to receive the vaccine ahead of their age bracket. This complaint was justified, given that in the first 3 months of 2021 Vermont foodservice workers were infected by COVID-19 at higher rates than any other occupation in the state (Duffort & Petenko, 2021). While we did not run statistical tests due to the small sample size, cross tabulations of the number of employee actions with financial status do not suggest a relationship with financial status from either time period (Table 6, Table 7). There are thriving, viable, sustainable, and (since COVID) vulnerable businesses that all took more than five actions in support of employees. There likewise is no suggestion of relationships between financial status before or since the pandemic and each specific employee support action.

All but one ($n=21$) of the foodservice busi-

Table 5. Actions Taken by Foodservice Operations to Address Employee Health and Wellbeing

Action	Total Participating Operations
Provided employees with personal protective equipment (PPE) such as masks, face shields, and gloves	21
Provided employees with free or discounted food	15
Adjusted sick leave policy to allow for flexibility in the case of symptoms or exposure	14
Allowed for flexible work schedules to accommodate employees' non-work obligations	14
Retained employees on payroll during shutdowns caused by COVID-19	13
Facilitated open conversations about mental health and stress	12
Staggered staff schedules to reduce workplace capacity	10
Allowed employees to work from home where possible	7
Connected employees with mental health resources	6
Connected current or laid-off employees with emergency food resources and/or food assistance programs	6
Provided employees with hazard pay for working during the COVID-19 pandemic	5
Provided employees with regular testing for COVID-19	4
Allowed furloughed employees to stay on employer healthcare plans	2

Note. n=22, 3 respondents did not complete this question.

nesses that responded to the questions on funding and information received funding, compared to 59 out of 102 responding farms. Financial status before the pandemic was significantly related (p=0.02) with whether the business received funding after

Table 6. Financial Status *Before* COVID-19 and Total Actions Taken to Support Employees

Total actions taken to support employees	Financial status before COVID-19			
	Thriving	Viable	Sustainable	Vulnerable
1–4	2	1	1	0
5–8	5	4	1	0
9–12	0	1	0	0

Note. n=15, 10 survey participants did not respond to either or both questions.

Table 7. Financial Status *Since* COVID-19 and Total Actions Taken to Support Employees

Total actions taken to support employees	Financial status since COVID-19			
	Thriving	Viable	Sustainable	Vulnerable
1–4	0	3	3	0
5–8	2	3	4	3
9–12	1	0	0	0

Note. n=19, 6 survey participants did not respond to either or both questions.

the pandemic hit. Businesses that were doing well pre-pandemic were more likely to have received funding later on, and all of the thriving businesses went on to receive funding (Table 8). There was no relationship (p=0.21) between receiving funding and financial status since the pandemic. While all five thriving businesses had been funded, so had more than half of viable, sustainable, and vulnerable businesses (Table 9).

Foodservice respondents had mixed opinions about emergency funding. One reported that the business would not have survived without the PPP and state programs. Another felt that larger businesses received more help from funding programs than small businesses. And one regretted taking the first PPP loan because it had to be paid back before the restaurant business was allowed to open. Multiple foodservice respondents celebrated the FEMA-funded Vermont Everyone Eats program, where food-insecure Vermonters received restaurant-prepared food for free and the state in turn paid restaurants US$10 for each meal (Bianchi et al., 2020). One restaurant owner reported, "The [Vermont] Everyone Eats program was a lifesaver. It's one of the few systems that works well to connect

those who grow, those who cook, and those who eat." Another celebrated how Everyone Eats strengthened their broader Vermont food network, saying, "The Everyone Eats program has introduced us to the network of restaurants and producers who care about their communities and state and want to do what they can to help."

Discussion

In this study, we used the questions on financial status as a proxy for business wellbeing and resilience. The phrasing of the categories, which encompass profitability, the ability to pay employees and at what rate, and available funds, describe what a business needs to continue operation. Because resilience is a latent capacity tested at a moment of crisis, it makes sense that business financial status before the COVID-19 pandemic was significantly related to financial status since the pandemic's onset. Where businesses stood affected where they wound up. And while three formerly viable and eight formerly sustainable businesses did become vulnerable, the majority of businesses in those viable and sustainable categories remained in place. In the face of an enormous challenge, our sample of Vermont local food businesses showed a marked resilience.

But financial well-being pre-crisis, while significant, was no panacea. Foodservice businesses were significantly more likely than farm businesses to have been doing well financially before the pandemic, but we found no relationship between business type and financial status since COVID-19. The normal daily operations of foodservice, which involve serving large volumes of people, were more impacted by COVID-19 lockdowns than the daily operations of Vermont farms selling direct to consumer. Our findings speak both to how hard foodservice businesses were hit and to how hard running a small farm is even in normal times.

Financial status before COVID-19 was also significantly related to whether businesses received

Table 8. Financial Status *Before* COVID-19 by Whether Businesses Received COVID-19 Emergency Funding

Financial status before COVID-19	Received funding?		% of each category that received funding
	Yes	No	
Thriving	12	0	100%
Viable	23	14	62%
Sustainable	36	29	55%
Vulnerable	1	1	50%

Note. Kruskal-Wallis H(2)=5.1175, df=1, *p*=0.02
n=116; 20 survey participants did not respond to either or both questions.

Table 9. Financial Status *Since* COVID-19 by Whether Businesses Received COVID-19 Emergency Funding

Financial status since COVID-19	Received Funding?		% of each category that received funding
	Yes	No	
Thriving	5	0	100%
Viable	22	11	67%
Sustainable	39	29	57%
Vulnerable	7	4	64%

Note. [a] Kruskal-Wallis H(2) = 1.5665, df = 1, *p*=0.2107
[b] *n*=117; 19 survey participants did not respond to either or both questions.

funding when the pandemic hit. All 12 businesses that were "economically thriving" before the pandemic received funding. This relationship has several possible intertwined explanations. Businesses that were more financially healthy before the pandemic may have had more financially knowledgeable staff with the wherewithal to apply to funding sources. Funders may have also prioritized businesses with strong financial track records. On the flipside, Demko et al. (2021) found that the financial reporting required for PPP applications was a major hurdle for farm owners. Confirming how federal and state governments, as well as other funders, allocated emergency funds would require a separate investigation of those data.

However, receiving funding was not significantly related with financial status since the COVID-19 pandemic. This result likewise has several possible explanations. It is possible that we surveyed businesses either too late or too soon to see the funding's impact. It is also possible that the funding insufficiently addressed these businesses' major obstacles. The federal funds that so many of

our respondents turned to were not designed for food businesses. One restaurant in our sample explained that they were not able to reopen and rehire staff before the end of the PPP loan term. Their complaint echoes the experience of the South Carolina restaurants surveyed by Brizek et al. (2021). The PPP was also at odds with the rhythm of farming, where activities are planned out a year ahead (Demko et al., 2021). In the continued COVID-19 pandemic and in future crises, emergency response programs tailored to and led by food business professionals, like Vermont Everyone Eats, may be more impactful.

The food system resilience literature emphasizes the importance of selling to and pivoting between a variety of markets, but our study found no relationship between either number of sales modes or changing sales modes and financial status for either time period. Each financial status category for both time periods included businesses selling through just one or two avenues as well as businesses selling across a broader range of markets. The key seems to be that businesses do what they do well, whether that means focusing their business or spreading it out. The same is true for whether businesses stopped or started sales modes: some resilient businesses were able to continue what they did well, and others made adjustments. Those businesses that did make major business changes were not hurt by doing so. It is possible that some businesses did not see any interruptions in their major markets and did not have to change. Furthermore, businesses that changed markets may have done so in a bid for survival, and their success may be measured not by financial improvement but by financial stasis. This view is supported by the open responses to the foodservice survey, where shifting markets was more common. Foodservice businesses launched new product lines, opened new wholesale accounts, and started takeout programs. Many foodservice businesses credited their ability to pivot with their survival. As one restaurant noted, shifting to reheat and eat meant a revenue reduction, "but we stayed open." It is possible that the value of market adaptability varied across sectors during the pandemic, but we do not have a sufficient sample for that investigation.

The foodservice sample was also too small to test the statistical significance of the actions businesses took to support employees, but the cross tabulations of employee actions and financial status do not suggest a relationship. Additional research with a bigger sample of foodservice operations would be necessary to confirm this hypothesis. Yet if it is true that there is no relationship between supporting employees and financial status one year into the pandemic, this would mean that businesses were not harmed by offering employees resources and support in unstable times. The literature needs not only larger samples of foodservice businesses, but also studies of their employees, who experienced rocky employment in high-contact jobs. Research is also needed on the experiences of hired farmworkers during the pandemic, which we do not address in this study.

Implications

Out of the many hypothesized indicators of resilience in our conceptual model, the only factor with a significant relationship to financial status one year into the pandemic was financial status before the pandemic. In the end, most businesses stood about where they started. And out of the 125 operations that reported their financial status since COVID-19, only 13, or just over 10%, were vulnerable. If the most (or only) significant factor in business resilience is the health of the business before a shock, then the most effective policies to encourage business resilience would focus not on crisis response but on fostering an economy in which small businesses can do well in normal times. For the local food businesses in our sample, Vermont seems to have been largely successful in that regard. But there is still room for improvement. Well over half (n=67) of the 109 farms that reported their pre-COVID financial status were merely sustainable before the pandemic, meaning that their farm was able to keep going thanks to either built equity or off-farm income. Future research and policy efforts should focus on developing policies, markets, and strategies to help small farms become viable businesses that can cover costs, pay family labor, and generate a profit.

Although we did not find that any of the adaptations businesses or government made in response to the pandemic helped the businesses in our sam-

ple, they also did no harm. Managers and owners who exercised their creativity, shifting markets and doing what they could to help employees, did so at no detriment to the business. Although we did not find the receipt of government funding to be a significant factor in financial status since the pandemic, the responses of foodservice businesses suggest that in some cases emergency funds were key to business survival. Further research with a larger sample of foodservice businesses, including those that did not receive funding, is needed to investigate the impact of government assistance on this sector.

The significant relationship between financial status before the pandemic and receiving funding after its onset also merits further investigation. What made emergency funds more accessible to thriving businesses, and less so to businesses that were struggling for viability? Did small farms encounter bureaucratic obstacles that hampered their ability to apply for emergency funds in the first place? Since many funds were loans, did funders privilege applicants they deemed more likely to repay on schedule based on prior financial track records? How might government assistance, both emergency and otherwise, exercise fiscal caution while ensuring funds are directed where they are needed most?

Conclusion

We investigated many possible contributors to the financial status of the businesses in our sample one year into the pandemic, but the only significant factor we identified was financial status before the pandemic. Out of the 120 businesses that responded to both financial status questions, 85, or 71%, reported the same status for both time periods. These results suggest that the most effective local food system resilience policy is not a disaster response plan but a long-term strategy for strengthening local food economies. While the foodservice businesses in our sample were hit harder by the pandemic, most of the farms relied on built equity or off-farm income even before COVID-19. Future research and policy should identify and activate strategies for helping direct sales farms become viable businesses.

The farms and foodservice operations in our sample made many adaptations in response to the COVID-19 pandemic. While we did not find that making adaptations improved financial status, we also did not find any negative association. These local food businesses made adjustments to stay open, to support employees, and to provide food for Vermonters, and they did not suffer for it.

We found no significant relationship between receiving funding and financial status since COVID-19, but businesses doing well before the pandemic were more likely to be funded once it hit. The relationship between business performance and federal, state, and private funding requires additional research. What barriers did businesses encounter applying to and receiving emergency funds? What was the impact of funding on foodservice alone? Did funds not sufficiently address COVID-19 disruptions, and/or did funding not continue for long enough, given the pandemic's length?

This study relied on a simple four-level measure of financial wellbeing. We chose this measure because it offers a picture of business status without much burden to the research participant. While we believe metrics like these to be most practical for survey research, they are of course simplified and subjective. Future studies may explore different survey-appropriate measures of fiscal health. They may also dive into financial specifics through macro-analyses of secondary data or offer appropriate benefits and/or compensation to research participants for taking part in in-depth explorations of individual business financials.

This study's greatest limitation was sample size and survey response, especially for the foodservice survey. Our survey response was limited both by the particular challenges of spring 2021 and the regular demands of foodservice business. The foodservice study also focused on operations engaged in local and regional food networks through their purchases and their involvement in the Vermont Fresh Network, which yielded 22 out of our 25 responses. For the most part, this list does not include Vermont's many restaurants owned and operated by immigrants, which may have faced different challenges meriting a separate investigation. An unsolved and perhaps unsolvable question is: how can researchers responsively and

productively study industries, like foodservice and farming, with busy workloads that happen away from a desk? How can we make research a useful exercise for both us and our research participants? How can we include restaurateurs and farmers who may not have the time to talk with us because their businesses are struggling? Barriers to building resilience capacity may also be barriers to research participation. Efforts at reducing this bias may require significant resource investment but will yield more complete results and help construct a more resilient food system.

References

Agency of Agriculture, Food and Markets. (n.d.). *Vermont COVID-19 agriculture assistance program*. Retrieved June 1, 2022, from https://agriculture.vermont.gov/covid-19-information/vermont-covid-19-agriculture-assistance-program

Agency of Commerce and Community Development. (n.d.). *Vermont emergency economic recovery grants*. Retrieved from https://web.archive.org/web/20220518152059/https://accd.vermont.gov/covid-19/economic-recovery-grants

An act relating to equitable access to a high-quality education through community schools, H.106 (Act 67), Vermont State Legislature, 2021 (2021). https://legislature.vermont.gov/bill/status/2022/H.106

Baum, S. D., Denkenberger, D. C., Pearce, J. M., Robock, A., & Winkler, R. (2015). Resilience to global food supply catastrophes. *Environment Systems and Decisions*, *35*, 301–313. https://doi.org/10.1007/s10669-015-9549-2

Behzadi, G., O'Sullivan, M. J., Olsen, T. L., Scrimgeour, F., & Zhang, A. (2017). Robust and resilient strategies for managing supply disruptions in an agribusiness supply chain. *International Journal of Production Economics*, *191*, 207–220. https://doi.org/10.1016/j.ijpe.2017.06.018

Béné, C. (2020). Resilience of local food systems and links to food security – A review of some important concepts in the context of COVID-19 and other shocks. *Food Security*, *12*, 805–822. https://doi.org/10.1007/s12571-020-01076-1

Béné, C., & Doyen, L. (2018). From resistance to transformation: A generic metric of resilience through viability. *Earth's Future*, *6*(7), 979–996. https://doi.org/10.1002/2017EF000660

Bianchi, S., Ghosh, A., Ripley, F., Ruggiero, L. R., & Cho, Y. (2020). *Vermont Everyone Eats formative evaluation: Community hub and restaurant experience*. Southeastern Vermont Community Action. https://img1.wsimg.com/blobby/go/a925333d-65bb-4391-b6e8-b1c6258363bc/downloads/VEE%20Final%20Report%201.15.21%20(1).pdf

Borges-Méndez, R., & Caron, C. (2019). Decolonizing resilience: The case of reconstructing the coffee region of Puerto Rico after Hurricanes Irma and Maria. *Journal of Extreme Events*, *6*(1), Article 1940001. https://doi.org/10.1142/S2345737619400013

Boyacı-Gündüz, C. P., Ibrahim, S. A., Wei, O. C., & Galanakis, C. M. (2021). Transformation of the food sector: Security and resilience during the COVID-19 pandemic. *Foods*, *10*(3), Article 497. https://doi.org/10.3390/foods10030497

Brizek, M. G., Frash, R. E., McLeod, B. M., & Patience, M. O. (2021). Independent restaurant operator perspectives in the wake of the COVID-19 pandemic. *International Journal of Hospitality Management*, *93*, Article 102766. https://doi.org/10.1016/j.ijhm.2020.102766

Connolly, K., Babbin, M. I., McKee, S. L., McGinn, K., Cohen, J. F. W., Chafouleas, S. M., & Schwartz, M. B. (2021). Dedication, innovation, and collaboration: A mixed-methods analysis of school meals in Connecticut during COVID-19. *Journal of Agriculture, Food Systems, and Community Development*, *10*(2), 11–27. https://doi.org/10.5304/jafscd.2021.102.020

Deliso, M. (2020, September 17). *How Vermont became a "model for the country" in responding to the coronavirus pandemic*. ABC News. https://abcnews.go.com/US/vermont-model-country-responding-coronavirus-pandemic/story?id=73057030

Demko, I., Sant'Anna, A. C., & Liang, K. (2021). An overview of the Paycheck Protection Program (PPP) loans and implications for agricultural enterprise recovery from COVID. *Journal of Agriculture, Food Systems, and Community Development*, *11*(1), 201–208. https://doi.org/10.5304/jafscd.2021.111.003

Duarte Alonso, A., Kok, S. K., Bressan, A., O'Shea, M., Sakellarios, N., Koresis, A., Buitrago Solis, M. A., & Santoni, L. J. (2020). COVID-19, aftermath, impacts, and hospitality firms: An international perspective. *International Journal of Hospitality Management*, *91*, Article 102654. https://doi.org/10.1016/j.ijhm.2020.102654

Duffort, L., & Petenko, E. (2021, March 24). *As state loosens restrictions on bars and restaurants, workers feel at risk.* VTDigger. https://vtdigger.org/2021/03/24/as-state-loosens-restrictions-on-bars-and-restaurants-workers-feel-at-risk/

Ericksen, P. J. (2008). What is the vulnerability of a food system to global environmental change? *Ecology and Society*, *13*(2), 14–31. https://doi.org/10.5751/ES-02475-130214

Farrer, J. (2020). How are Tokyo's independent restauranteurs surviving the pandemic? *Asia-Pacific Journal*, *18*(18), Article 5483. https://apjjf.org/2020/18/Farrer.html

Food and Agriculture Organization of the United Nations [FAO]. (2013). *Resilient livelihoods: Disaster risk reduction for food and nutrition security.* https://www.fao.org/3/i3270e/i3270e.pdf

Gkoumas, A. (2021). Developing an indicative model for preserving restaurant viability during the COVID-19 crisis. *Tourism and Hospitality Research*, *22*(1), 1–14. https://doi.org/10.1177/1467358421998057

Joseph, J. (2013). Resilience as embedded neoliberalism: A governmentality approach. *Resilience*, *1*(1), 38–52. https://doi.org/10.1080/21693293.2013.765741

Madeira, A., Palrão, T., & Mendes, A. S. (2021). The impact of pandemic crisis on the restaurant business. *Sustainability*, *13*(1), 40. https://doi.org/10.3390/su13010040

Magis, K. (2010). Community resilience: An indicator of social sustainability. *Society & Natural Resources*, *23*(5), 401–416. https://doi.org/10.1080/08941920903305674

Mastronardi, L., Cavallo, A., & Romagnoli, L. (2021). How did Italian diversified farms tackle Covid-19 pandemic first wave challenges? *Socio-Economic Planning Sciences*, *82*(A), Article 101096. https://doi.org/10.1016/j.seps.2021.101096

Neise, T., Verfürth, P., & Franz, M. (2021). Rapid responding to the COVID-19 crisis: Assessing the resilience in the German restaurant and bar industry. *International Journal of Hospitality Management*, *96*, Article 102960. https://doi.org/10.1016/j.ijhm.2021.102960

Nemes, G., Chiffoleau, Y., Zollet, S., Collison, M., Benedek, Z., Colantuono, F., Dulsrud, A., Fiore, M., Holtkamp, C., Kim, T.-Y., Korzun, M., Mesa-Manzano, R., Reckinger, R., Ruiz-Martínez, I., Smith, K., Tamura, N., Viteri, M. L., & Orbán, É. (2021). The impact of COVID-19 on alternative and local food systems and the potential for the sustainability transition: Insights from 13 countries. *Sustainable Production and Consumption*, *28*, 591–599. https://doi.org/10.1016/j.spc.2021.06.022

O'Hara, J. K., Woods, T. A., Dutton, N., & Stavely, N. (2021). COVID-19's impact on farmers market sales in the Washington, D.C., area. *Journal of Agricultural and Applied Economics*, *53*(1), 94–109. https://doi.org/10.1017/aae.2020.37

Perrin, A., & Martin, G. (2021). Resilience of French organic dairy cattle farms and supply chains to the Covid-19 pandemic. *Agricultural Systems*, *190*, 103082. https://doi.org/10.1016/j.agsy.2021.103082

Schipanski, M. E., MacDonald, G. K., Rosenzweig, S., Chappell, M. J., Bennett, E. M., Kerr, R. B., Blesh, J., Crews, T., Drinkwater, L., Lundgren, J. G., & Schnarr, C. (2016). Realizing resilient food systems. *BioScience*, *66*(7), 600–610. https://doi.org/10.1093/biosci/biw052

Tendall, D. M., Joerin, J., Kopainsky, B., Edwards, P., Shreck, A., Le, Q. B., Kruetli, P., Grant, M., & Six, J. (2015). Food system resilience: Defining the concept. *Global Food Security*, *6*, 17–23. https://doi.org/10.1016/j.gfs.2015.08.001

Thilmany, D., Canales, E., Low, S. A., & Boys, K. (2020). Local food supply chain dynamics and resilience during Covid-19. *Applied Economic Perspectives and Policy*, *43(*1), 86–104. https://doi.org/10.1002/aepp.13121

Tittonell, P., Fernandez, M., El Mujtar, V. E., Preiss, P. V., Sarapura, S., Laborda, L., Mendonça, M. A., Alvarez, V. E., Fernandes, G. B., Petersen, P., & Cardoso, I. M. (2021). Emerging responses to the COVID-19 crisis from family farming and the agroecology movement in Latin America – A rediscovery of food, farmers and collective action. *Agricultural Systems*, *190*, Article 103098. https://doi.org/10.1016/j.agsy.2021.103098

Toth, A., Rendall, S., & Reitsma, F. (2016). Resilient food systems: A qualitative tool for measuring food resilience. *Urban Ecosystems*, *19*, 19–43. https://doi.org/10.1007/s11252-015-0489-x

Worstell, J., & Green, J. (2017). Eight qualities of resilient food systems: Toward a sustainability/resilience index. *Journal of Agriculture, Food Systems, and Community Development*, *7*(3), 23–41. https://doi.org/10.5304/jafscd.2017.073.001

Exploring the motivations, satisfactions, and well-being of agricultural intentional community residents

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Abstract

Intentional communities have long provided an alternative living solution for those wanting to live with a group of others who share their values. Intentional community residents throughout the U.S. were surveyed to discover their intrinsic satisfactions and motivations, and community features they envision in their futures, as well as to investigate their psychological well-being and if they experience or search for personal meaning. Of the 204 U.S. communities identified with a gardening or agricultural focus, 83 agreed to be surveyed, garnering 259 responses. It was found that engagement in local food systems elicits intrinsic satisfaction in the areas of *community food* (such as growing and sharing food with neighbors) and *participation* (such as contributing to a larger goal or purpose). However, local food system engagement does not strongly increase psychological well-being, suggesting that those living in agricultural communities may have their well-being supported in other lifestyle areas. Recommendations for communication and recruitment are then addressed: it is important to emphasize communitarian and social values when advertising intentional communities to interested parties. Secondary values, such as environmentalism, and the intrinsic satisfaction associated with *participation* can also be successfully used in communication, especially when paired with future-oriented envisioning of their communities.

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Introduction

Intentional communities provide unique living solutions for individuals seeking to live with others who share their ideals. While many definitions exist, intentional communities may be broadly defined in this way:

> [A] group of people who have chosen to live together with a common purpose, working cooperatively to create a lifestyle that reflects their shared core values. The people may live together on a piece of rural land, in a suburban home, or in an urban neighborhood, and they may share a single residence or live in a cluster of dwellings…these groups [place] a high priority on fostering a sense of community—a feeling of belonging and mutual support that is increasingly hard to find in mainstream Western society. (Kozeny, 1995, p. 1)

Various iterations of intentional communities have existed during most of human history, with the earliest recorded about 525 BCE (Metcalf, 2012). These communities have occurred throughout much of American history as well, with their popularity rising during periods of cultural and social instability (Brown, 2002). Although modern intentional communities are distinct, many value the importance of social connections and environmental sustainability. While commonalities exist between intentional communities, there are also many different types, such as cooperatives, cohousing, and communes (Kozeny, 1995), as well as ecovillages (Litfin, 2012) and religious communities, e.g., kibbutzim (Anson et al., 1991). The communities may differ in terms of their governance structures, types of housing, social or cultural norms, or ecological and spiritual commitments. Some intentional communities seek to improve the psychological well-being of their residents through participating in civic agriculture, e.g., Sylvan NeighborWood near Chelsea, Michigan. Civic agriculture may be broadly defined as "a locally-based agricultural and food production system that is tightly linked to a community's social and economic development" (Lyson, 2000, p. 42). Civic agriculture contributes to community cohesion, development, and empowerment through individ-

uals' participation in community supported agriculture programs, farmers markets, and food cooperatives, as well as providing opportunities for social and cultural events (Obach & Tobin, 2014; Saldivar-Tanaka & Krasny, 2004, Veen et al., 2015). This suggests that sustainable agricultural communities may also contribute sociological benefits to the larger community.

This research was conducted to investigate psychological aspects of the residents of intentional communities throughout the United States, specifically those that feature agricultural or gardening components on their land. Surveys studied resident intrinsic satisfactions, their envisioned ideal futures, psychological well-being, and meaning in life. The research was designed to test the relationships between these concepts in an exploratory manner, which traditionally does not use hypotheses as the building blocks of the study. However, these concepts have not yet been studied within this population, creating an exciting opportunity to better understand this understudied group.

The concept *intrinsic satisfactions* refers to the feelings of satisfaction that are felt by someone when they are internally motivated to engage in a behavior (De Young, 1996). Studying the intrinsic satisfactions of community residents will help intentional community developers to better understand what motivates their future residents and what activities elicit the most satisfaction, and allow developers to organize their community structures to most benefit their residents. In general, individuals are intrinsically motivated to pursue behaviors that increase their competence and use fewer resources (De Young, 1996; Howell, 2013; Sheldon et al., 2011). However, it is important to understand the specific motivations that drive those who live in intentional communities so as to provide opportunities for them to emotionally prosper (De Young, 2012).

Envisioning is the process of cultivating an individual and community vision for the future; this process has been argued to be essential to building a sustainable society (Meadows, 1994, 2012). Envisioning naturally occurs while intentional communities are in development as well as individually when residents decide to join the community. In both instances, individuals alone and collectively

take time to envision a desired future, which they work toward within the community. As this process has not been extensively empirically studied, it will be important to document and analyze what current residents of intentional communities envision when they imagine the qualities of the communities in which they are living in an ideal future. This information will better allow developers to plan for and eventually provide such qualities in their communities.

In addition, there is considerable theoretical support for the idea that a sustainable agricultural community can support *psychological well-being*. For example, the practices of gardening and small-scale agriculture have numerous psychological benefits, including well-being, such as reduced stress and increased mood (e.g., Lovell et al., 2014; Wood et al., 2016). As these activities would be common in an agricultural community, they could well support the well-being of their residents. More directly, however, intentional communities also create positive psychological benefits in their residents, such as improved well-being (Hall, 2015), restored attentional capacity (Ouellette et al., 2005), and greater connection to the community and nature (Kirby, 2003; Sanguinetti, 2014). Unfortunately, there has not yet been documented research linking intentional community living and meaning in life. However, there has been a noted connection between well-being and meaning in life (King et al., 2006; Mascaro & Rosen, 2005), suggesting that intentional community residents may experience a heightened sense of existential meaning as well.

The lack of empirical research studying this specific topic presents an opportunity for an exploratory study. This research helps shed light on the psychological needs of intentional community residents while supporting the endeavors of those who are developing new or current communities. The results of this research may inform future recruitment, marketing, or communication strategies developed by intentional communities, as well as physical and social planning within communities. It may also be used by those working in gardening or agricultural not-for-profit organizations whose members or volunteers are actively involved in local food systems.

Methods

A U.S. nationwide survey was conducted from January to July 2018 to study the psychological qualities of those who currently live in agricultural intentional communities, including their intrinsic satisfactions, visions of future community life, psychological well-being, and the meaning they search for and experience in their lives. Communities were identified in the *Fellowship for Intentional Community* database (www.ic.org) by administering an online search using the keywords "agriculture" and "farm." An additional search was completed for communities which identified "garden" as a common facility in their community profile pages. The search identified 214 communities; ten were excluded based on their closing or not fulfilling the search criteria (e.g., therapeutic communities of residents with intellectual disabilities). In addition, two Ann Arbor, Michigan communities, Sunward Cohousing and Great Oak Cohousing, were added to the sample due to the researchers' familiarity with them and the fact that they fulfilled the study's eligibility requirements. Of these 206 communities, 83 agreed to participate in the study. Community representatives were asked to email survey links to the community listserv or interested members, which yielded 259 responses. Generally, responses were evenly distributed among each community.

The survey included previously validated as well as new sets of questionnaire items. Previously developed scales included 16 items of the Intrinsic Satisfaction scale (De Young, 2000), 18 items of the Ryff Measure of Psychological Well-Being (Clarke et al., 2001), and the Meaning in Life Questionnaire (Steger et al., 2006). Newly developed sets of questions included additions to the Intrinsic Satisfaction scale and a scale measuring envisioned features of future community life. Additional questions inquired about respondent support for intentional communities, experience living in them, involvement in local food advocacy organizations, the ways in which they support and engage in local food systems, and demographic information. When appropriate, the survey instrument used a five-point Likert scale, with a response of five indicating the highest endorsement of the item.

Independent variables include meaning in life,

envisioned community features, experience in intentional community living, and demographic information. Dependent variables include intrinsic satisfactions and psychological well-being. Depending on the context, engagement in local food systems (*Food Engagement*) serves as either an independent or dependent variable.

The first set of statistical tests utilized factor analysis, a test that uncovers patterns in how the sample thought about and answered the survey questions (Yong & Pearce, 2013). The purpose of the factor analyses is to reveal how survey respondents perceived and categorized the primary questionnaire items, including intrinsic satisfactions, envisioned community features, psychological well-being, and meaning in life. Each analysis identified a series of categories, which were then tested using Cronbach's alpha, a test that measures the consistency between a group of survey items (Cronbach, 1951). In other words, Cronbach's alpha measures the extent to which the group of items would receive similar scores if a new sample retook the survey. As this is an exploratory study, a minimum alpha of .60 for each category was accepted for initial analysis. Secondary regression-based analysis required a minimum alpha of .70 for each category. Finally, the pairwise comparison of means for each set of categories was conducted using the T-test, which compares the means of two samples for significant difference.

Stepwise regression analysis then determined which independent variables most contribute to changes in the tested dependent variables. Stepwise analysis was chosen because of the research's exploratory nature, given that the variables' relationships are still largely unknown to researchers.

The responses to the questions about *Food Engagement* were averaged into a new variable which was used in the stepwise regression analysis (Table 1). This set of questionnaire items measured engagement through purchasing produce from farms, volunteering on or visiting farms, buying community supported agriculture (CSA) shares, or attending events held on farms (e.g., farm dinners).

Table 1. Questions Included in the *Food Engagement* Variable

Food Engagement
I support local food systems by…
… Purchasing local food products
… Volunteering on farms
… Buying CSA shares
… Visiting farms
… Attending farm dinners or other events
… Other: _____

Results

Survey Data: Demographic Information and Categories Extracted

Sample Demographics[1]
The majority of the respondents were 55-64 years old (27.3%; $n = 59$), followed closely by those 65–74 (24.1%, $n = 52$). The average age bracket of the sample was 45–54 ($M = 4.41$, $N = 216$).

The sample was well-educated. Most respondents attained a master's degree or equivalent (36%; $n = 77$), followed by those who graduated with a bachelor's degree (25.7%; $n = 55$). The average education level was at the bachelor's degree level, bordering on completing some graduate or professional schoolwork ($M = 5.7$, $N = 214$).

Most respondents reported an income of less than US$15,000 per year (19.9%, $n = 41$). The second most common income category was between US$50,000 and US$74,999 (17.5%; $n = 36$). The average income was between US$35,000 and US$49,999 ($M = 4.32$, $N = 206$).

The race and ethnicity of the sample was homogenous. 92% of the sample identified as white ($n = 195$) and 4.7% selected "Other" ($n = 10$; $N = 212$). Only 2.9% of the sample identified as of Hispanic, Latino, or Spanish ethnicity ($n = 6$; $N = 205$).

Respondents were asked about their experience living in different types of intentional communities. Respondents had most experience living in

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[1] Some of the percentages presented in this section are skewed due to respondents skipping select demographic questions.

co-housing communities, approximately 1–2 years on average (*M* = 3.2; *N* = 208). This was followed by planned agricultural communities, or communities planned with a strong agricultural focus, with less than a year on average (*M* = 2.3, *N* = 198).

Representatives from each community were asked to describe their community using categories from the *Fellowship for Intentional Community* database. Eighteen representatives described their community using multiple categories; one representative did not return the information by the deadline. Co-housing was also the most common type of community in which respondents were currently living (*n* = 143), followed by ecovillages (*n* = 86; *N* = 259; Table 2).

Intrinsic Satisfactions

Intrinsic satisfactions were measured by asking participants about the actions which they find meaningful. Responses to these questions were evaluated on a scale of 1–5 (Not at all–A very great deal). Factor analysis was performed on the questionnaire items, and six categories of intrinsic satisfaction were identified: *Community Connection, Participation, Sustainable Living, Frugality, Community Food,* and *Luxuries* (Table 3). Notably, three of the categories (*Frugality, Participation,* and *Luxuries*) were identified in prior research use of these items (De Young, 2000). *Community Connection, Sustainable Living,* and *Community Food* composed items newly developed for the present study. Pairwise t-tests were performed to compare means, and found that all categories were significantly different from each another (*p* ≤ .05).

The first category, *Community Connection,* is the most highly endorsed by the survey respondents (*M* = 4.41). This category encompasses meaning derived

Table 2. Frequency of Community Type in the Sample

Community Type	Frequency	Percentage (*N* = 259)
Cohousing	143	55.6%
Ecovillage	86	33.2%
Shared Housing	34	13.2%
Commune	27	10.4%
Other	23	8.9%
Spiritual	19	7.3%
Student Co-Op	3	1.2%

Respondents could select multiple answers.

Table 3. Categories of Intrinsic Motivations

Category Name and Items Included	Mean*	SD	Alpha
Community Connection	4.41	.54	.66
Sharing with my community			
Participating in community initiatives			
Feeling connected to where I live			
Participation	4.30	.65	.77
Taking actions which can change the world			
Helping to make sense out of the world			
Doing things that help bring stability to the world			
Doing things that matter in the long run			
Sustainable Living	4.20	.69	.65
Living a low-carbon lifestyle			
Positively impacting the environment			
Avoiding industrialized agriculture			
Frugality	4.10	.75	.81
Finding ways to use things over and over			
Keeping something running past its normal life			
Repairing rather than throwing things away			
Finding ways to avoid waste			
Community Food	3.79	.97	.82
Growing food with my neighbors			
Providing food for my community			
Buying fewer groceries by growing my own foods			
Luxuries	2.42	.74	.69
Having many items to choose from when purchasing			
Having the luxuries and conveniences of our society			
Having clothing that is in style			
Being a citizen of a country with vast resources			

* All pairwise comparison of means is significantly different at p ≤ .05

from the social connections found within a close-knit community. It includes ideas of sharing with others, engaging in local initiatives, and feeling personally connected to the individual's community of residence.

The second category, *Participation,* was also highly endorsed by respondents ($M = 4.30$). This concept involves the internal satisfaction provided by the feeling that an individual's personal actions will positively influence the world. This positive influence usually signifies that the individual is doing something that they consider contributes to a greater good.

The third category, *Sustainable Living,* was similarly highly endorsed ($M = 4.20$). This category refers to finding meaning in pursuing a lifestyle with little environmental impact, such as limiting personal carbon dioxide emissions and purchases of produce grown by industrialized agriculture.

The fourth category, *Frugality*, was also highly endorsed ($M = 4.10$). Those who endorse this category find internal satisfaction associated with avoidance of waste as well as reuse and fixing of items. Overall, the category's emphasis is placed on the intentional, nonwasteful use of resources.

The fifth category, *Community Food*, received modest endorsement from respondents ($M = 3.79$). This category represents meaning associated with agricultural activities. These activities may be performed in collaboration with neighbors, with the eventual goal of sharing with community members, or simply involve purchasing fewer groceries at the supermarket.

The sixth category, *Luxuries*, received moderately low endorsement ($M = 2.42$). This category relates to gaining intrinsic satisfaction from living in a developed society with modern affluences, conveniences, and choices. The category does not describe finding meaning from luxurious purchases, but instead from the affordances of living in a developed society.

As stated, the first four categories—*Community Connection, Participation, Sustainable Living,* and *Frugality*—were each highly endorsed by survey respondents ($M \geq 4.10$), suggesting that the respondents strongly related to these concepts. This suggests that intrinsic satisfaction involving each of these categories is experienced often and is familiar to

the respondents. The remaining categories, *Community Food* and *Luxuries*, were endorsed less often by respondents ($M = 3.79$ and 2.42, respectively). The proximity of *Community Food* to the mid-point of the scale suggests that the experiences that the category encompassed may not have represented much to the respondents, such as usually lacking the opportunity to grow their own food. Furthermore, the moderately low endorsement of *Luxuries* suggests that respondents did not experience a great deal of satisfaction from this concept. This is perhaps not surprising, as this concept focuses specifically on the modern conveniences of techno-industrial society which some individuals are willing to forego for the sake of living in a developing community. However, it is worth noting that the average satisfaction derived is not extremely low, suggesting that these conveniences are still found to be somewhat satisfying to the sample.

Envisioned Community Features
A second analysis was conducted on a series of questionnaire items measuring the extent to which various community features were envisioned in respondents' ideals of a future neighborhood. Responses to these questions were also evaluated on a scale of 1–5 (Not at all–A very great deal). Factor analysis identified four categories: *Thriving Community*, *Transportation*, *Gardens*, and *Consumerism* (Table 4). The *Transportation* category was excluded from further analysis due to the thematic dissimilarity among its survey items.

The first category, *Thriving Community*, received the highest endorsement from the survey respondents ($M = 4.67$). This concept encompasses features that determine a safe and happy community. Neighbors live comfortably with access to the resources that they need, they gather in shared spaces, and their communities are situated in natural environments free of pollutants.

The second category, *Gardens*, was also highly endorsed by the sample ($M = 4.21$). This concept describes neighborhood and community features specifically relating to agriculture, including both the physicality and the social realm of gardening. These features include caring for livestock, private gardens, and teaching gardens.

Table 4. Categories of Envisioned Future Community Features

Category Name and Items Included	Mean	SD	Alpha
Thriving Community	4.67	.52	.83
Happy neighbors			
A thriving community center			
A healthy natural environment			
A safe neighborhood			
Neighbors who have what they need			
Transportation (Excluded from further analysis)	4.21*	.73	.71
People riding bicycles			
Public transportation			
Ethnically diverse neighbors			
The newest energy technologies			
Gardens	4.21*	.77	.71
Neighbors taking care of livestock (e.g., chickens, goats)			
Gardens outside of houses			
Teaching gardens			
Consumerism	1.55	.67	.72
The newest consumer products			
The latest fashion trends			
Corporate advertising			

* All pairwise comparison of means is significantly different at p ≤ .05 except for those marked with an asterisk.

The third category, *Consumerism*, involved tangible representations of modern capitalism in a community. It would include perceiving fashion trends, consumer products, and corporate advertising throughout the community. This category had an extremely low endorsement (*M* = 1.55).

It seems worth noting that the high endorsement of *Thriving Community* and *Gardens* suggests that these features are important to respondents in the present and that they hope to see them as a central part of their communities in the future. Physical representations of modern consumerism, however, seem to be considerably less important to the respondents because they are rarely included in their ideas of what should be included in a future neighborhood.

Psychological Well-Being
A third analysis measured the psychological well-being of the sample using a 1–5 scale (Strongly disagree–Strongly agree). Factor analysis investigated categories of psychological well-being experienced by residents of intentional communities. As this set of questionnaire items used the 18-item Ryff Measure of Psychological Well-Being, researchers expected that factor analysis would reveal the six categories associated with the Ryff scale: self-acceptance, positive relations, environmental mastery, personal growth, autonomy, and purpose in life (Ryff & Keyes, 1995). However, the results of the factor analysis do not reflect these categories, revealing, instead, that the respondents organized the items into two categories, *Behavioral Aesthetics* and *Autonomy* (Table 5). Additional categories were identified but did not meet the Cronbach's alpha criteria for further study.

Behavioral Aesthetics received relatively high endorsement from the sample (*M* = 4.01). The concept delineates a life with positive and warm relationships, personal fulfillment, and satisfaction with one's achievements. "Behavioral aesthetics" refers to the idea of a life well-lived, almost as a work of art, which, when reflected about as a whole, one would feel that they lived beautifully (De Young, 2019). The survey respondents indicate that an aesthetically beautiful life would include many of the concepts described within this category.

The category *Autonomy* received modestly high endorsement from respondents (*M* = 3.87). This concept indicates resolve and confidence in one's own opinions. It generally aligns with Ryff's definition of Autonomy (Ryff & Keyes, 1995) but includes one additional item ("Some people wander aimlessly through life…"). This addition suggests that respondents associated the sense of purpose conveyed by the item with the internal strength that is needed to be confident in oneself.

The relatively high support for both categories suggests that those respondents who live in intentional communities experience significant psychological well-being. They seem to be happy with their lives, as well as with their experiences and

relationships in particular. It also seems that they are satisfied with their decisions and generally confident in their opinions.

Meaning in Life

The fourth analysis investigated the meaning in life experienced and searched for by residents of intentional communities. This concept was operationalized using the Meaning in Life Questionnaire (Steger et al., 2006), which utilizes a 1–5 scale (Ab-

solutely untrue–Absolutely true). This questionnaire divides this concept into two categories, *Presence* and *Search*, which were replicated by factor analysis using the current study data (Table 6). *Presence* was the most highly endorsed category ($M = 4.08$). It indicates the felt presence of meaning: a strong sense of purpose, an understanding of one's life direction, and the meaning associated with one's life and actions. *Search* received modest endorsement by the sample ($M = 3.10$). The cate-

Table 5. Categories of Psychological Well-Being

Category Name and Items Included	Mean*	SD	Alpha
Behavioral Aesthetics	4.01	.56	.83
Maintaining close relationships has been difficult and frustrating for me [a]			
In many ways, I feel disappointed about my achievements in life [a]			
When I look at the story of my life, I am pleased with how things have turned out			
I have not experienced many warm and trusting relationships with others [a]			
The demands of everyday life often get me down [a]			
I like most aspects of my personality			
In general, I feel I am in charge of the situation in which I live			
People would describe me as a giving person, willing to share my time with others			
I am quite good at managing the responsibilities of my daily life			
Autonomy	3.87	.56	.60
I judge myself by what I think is important, not by what others think			
I tend to be influenced by people with strong opinions [a]			
I have confidence in my own opinions, even if they are contrary to the general consensus			
Some people wander aimlessly through life, but I am not one of them			

* Pairwise comparison of means is significantly different at $p \le .05$.
[a] Items reversed for factor analysis.

Table 6. Categories of Life Meaning Perceptions

Category Name and Items Included	Mean*	SD	Alpha
Presence	4.08	.75	.89
My life has a clear sense of purpose			
I have discovered a satisfying life purpose			
I have a good sense of what makes my life meaningful			
My life has no clear purpose [a]			
I understand my life's meaning			
Search	3.10	1.07	.89
I am always searching for something that makes my life feel significant			
I am searching for meaning in my life			
I am looking for something that makes my life feel meaningful			
I am always looking for my life's purpose			
I am seeking a purpose or mission for my life			

* Pairwise comparison of means is significantly different at $p \le .05$.
[a] Item reversed for factor analysis.

gory describes the search for life meaning, either internally (through reflection) or externally (by trying various activities). The commonality within this category is the search for a sense of purpose and meaning in one's life.

The high endorsement of the *Presence* category suggests that intentional community residents feel a strong sense of life presence and meaning. It is possible that they discovered the sense of purpose as a result of living in an intentional community setting, although this cannot by confirmed without additional data from a longitudinal or comparative study. In contrast, the modest endorsement of the *Search* category suggests that a search for life meaning is not prioritized highly by intentional community residents.

The Role of Food Engagement

A series of stepwise multiple linear regression analyses investigated the relationships among the varia-

bles that predicted engagement in local food systems (*Food Engagement*), and if the engagement leads to intrinsic satisfactions and/or personal well-being. A forward stepwise regression analysis was chosen because the addition of each variable would strengthen the model. Analyses using categories created by factor analysis (i.e., *Envisioning, Meaning in Life, Intrinsic Satisfactions, Well-Being*) only used categories with high internal consistency ($\alpha \geq .70$).

Four analyses were performed (Figure 1). First, a series of independent variables and categories was analyzed to determine the strength of their contribution to the likelihood of individual *Food Engagement* (see below, "Which variables contribute to food engagment?"). Then *Food Engagement* was analyzed in three separate tests in combination with demographic variables to determine its likelihood of contributing to intrinsic satisfactions and personal well-being (see below, "Which variables does food engagement contribute to?"). Thus, in

the analyses discussed below, *Food Engagement* was used first as a dependent and then as an independent variable. Note that each table below presents the final version of each model, as determined by stepwise regression analysis. For all model iterations developed in each analysis, see Appendix A.

Figure 1. Diagram Outlining Regression Tests Described in the Sections "Which Variables Contribute to Food Engagement?" and "Which Variables Does Food Engagement Contribute to?"

Which Variables Contribute to Food Engagement?
In the first analysis, experience living in a planned agricultural community was the largest predictor in determining *Food Engagement* (Table 7). *Meaning in Life: Presence* also contributed positively to the model. The results indicate that the independent variable *Age* may have a negative effect in determining *Food Engagement*,
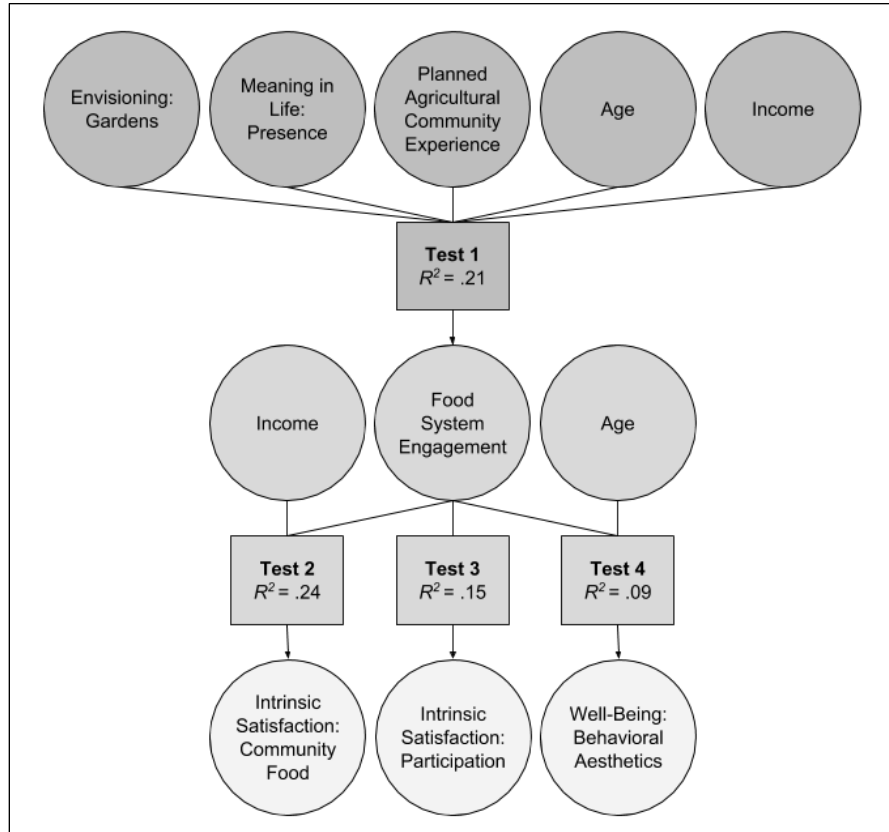
such that younger individuals are more likely to participate in these behaviors (β = -.19). The variables *Income* and *Envisioning: Gardens* both have a positive effect on the model, suggesting that those with a higher income and who see a role for gardens in their ideal future report being more likely to engage in local food systems. Cumulatively, these results suggest that those who have experience living in a planned agricultural community, who feel meaning in their lives, are younger and have higher incomes, and who envision gardens in their ideal futures, are most likely to participate in local food systems and their associated activities. This model accounts for a modest 21% of the variance in *Food Engagement* behaviors (R^2 = .21), meaning that 21% of the model is explained by the independent variables.

Which Variables Does Food Engagement Contribute To?

The next stage of stepwise multiple regression analyses test if *Food Engagement* contributes to the various categories of intrinsic satisfaction and well-being. In the following analyses, the independent variables included *Food Engagement*, *Age*, and *Income*. Additional independent variables were tested but did not contribute to the strength of the models.

Table 8 documents the stepwise regression results from investigating the variables which predict deriving intrinsic satisfaction from *Community Food*, or activities which involve growing and sharing food with one's neighbors. Two independent variables were found to predict this type of intrinsic satisfaction: *Food Engagement*, which provided the largest effect, and *Income*. Notably, *Income* has a negative effect on obtaining intrinsic satisfaction from *Community Food* (β = -.33), suggesting that those who have lower incomes find greater satisfaction from these activities. It is possible that people of lower income levels are more likely to appreciate the gains from supporting local food systems, such as buying produce from local farms or pur-

Table 7. Dependent Variable: *Food Engagement*

Independent Variable	B	SE B	β	p
Planned Agricultural Community Experience	.20	.05	.30	.000
Meaning in Life: Presence	.30	.11	.20	.005
Age	-.14	.05	-.19	.006
Income	.10	.03	.21	.004
Envisioning: Gardens	.24	.10	.16	.021
R^2	.21			
Adj. R^2	.19			
F	10.87*			

* F-test is significant at F ≤ .05

Table 8. Dependent Variable: *Intrinsic Satisfaction From Community Food*

Independent Variable	B	SE B	β	p
Food Engagement	.33	.05	.40	.000
Income	-.13	.02	-.33	.000
R^2	.24			
Adj. R^2	.23			
F	31.3*			

* F-test is significant at F ≤ .05

Table 9. Dependent Variable: *Intrinsic Satisfaction From Participation*

Independent Variable	B	SE B	β	p
Food Engagement	.21	.04	.39	.000
R^2	.15			
Adj. R^2	.14			
F	35.38*			

* F-test is significant at F ≤ .05

chasing CSA shares, due to the socioeconomic barriers challenging their ability to access and engage in these activities. This model accounts for 24% of the variance for this variable (R^2 = .24).

Table 9 shows the results of stepwise regression analysis of the intrinsic satisfaction from the *Participation* category, that is, the satisfaction gained from feeling as if one's actions are contributing to a larger purpose. In this analysis, only *Food Engagement* predicted experiencing this type of intrinsic satisfaction. Perhaps individuals of all ages and incomes are equally likely to experience this kind of intrinsic satisfaction, while engaging with the local food system could elicit a greater sense of

Figure 2. Diagram Outlining Regression Tests Described in the secton "Additional Predictors of Intrinsic Satisfactions and Psychological Well-Being
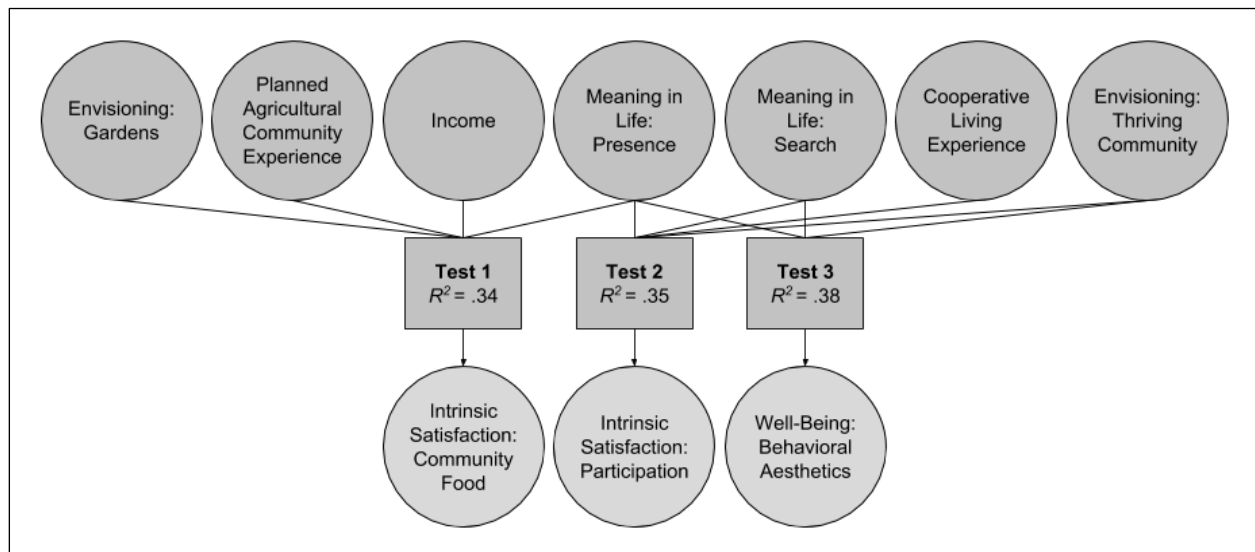
Table 10. Dependent Variable: *Behavioral Aesthetics*

Independent Variable	B	SE B	β	p
Food Engagement	.14	.03	.27	.000
Age	.05	.02	.15	.027
R²	.09			
Adj. R²	.09			
F	10.43*			

* F-test is significant at F ≤ .05

supporting community members and the local food movement. However, this regression model only accounts for a modest percentage of the variance in this variable: 15% (R^2 = .15).

The final regression model investigated the predictors of the *Behavioral Aesthetics* well-being category (Table 10). In this model, *Food Engagement* was the largest predictor of experiencing this form of well-being. *Age* was the second main predictor, with the likelihood of experiencing this well-being slightly increasing as respondents grow older (β = .15). However, the relationship of both variables to well-being is weak. This model only explains 9% of the variance in well-being relating to *Behavioral Aesthetics* (R^2 = .09).

Additional Predictors of Intrinsic Satisfactions and Psychological Well-Being

A second stage of stepwise multiple regression analyses was conducted to determine the role of intentional community experience, envisioning, and meaning in life in influencing intrinsic satisfactions and psychological well-being (Figure 2). While the previous set of regression analyses used the *Food Engagement* category as a mediating variable, the second stage of analyses determined the *direct* effect of these variables on intrinsic satisfactions and psychological well-being. These tests utilized a forward stepwise regression, that allowed the variables to build upon each other while strengthening the models. Like the previous set of regression analyses, categories that demonstrated high internal reliability (α ≥ .70) were used.

Table 11 shows the results of the analysis exploring the relationship between the independent variables and the intrinsic satisfaction gained from engaging in activities related to *Community Food*. Of the four variables found to predict this type of intrinsic satisfaction, the *Envisioning: Gardens* category was the foremost predictor (β = .42). This prominence, combined with the second main predictor, *Planned Agriculture Community Experience*, is possibly due to the heightened valuing of and direct experience in gardening and other agricul-

tural operations associated with agricultural community living. Income also served as a negative predictor in the model, suggesting that there is a relationship between decreasing income and increasing satisfaction from *Community Food* (β = .17). Finally, *Meaning in Life: Presence* serves as the fourth predictor, indicating that those who experience this meaning may be more likely to gain satisfaction from *Community Food* activities. This model explains 34% of the variance in experiencing intrinsic satisfaction from *Community Food* activities (R^2 = .34).

Table 12 documents the effects of the independent variables on intrinsic satisfaction gained from *Participation*. Four variables were found to predict this satisfaction, with *Meaning in Life: Presence* the largest predictor. As both *Meaning in Life: Presence* and *Meaning in Life: Search* appeared in the model, it seems that meaningfulness increases the likelihood of experiencing intrinsic satisfaction from *Participation*. It is possible that the activities that these individuals engage in are more likely to give them a sense of purpose. *Envisioning: Thriving Community* was also a positive predictor in the model: those respondents who value this type of future community may be more likely to engage in activities with their current community which would then elicit their reported satisfaction gained from *Participation*. Prior experience living in a cooperative living community also had a modest effect in the model (β = .16), possibly because of the value placed on collaborating and working toward common goals in these communities. This model explains 35% of the variance in the intrinsic satisfaction gained from *Participation* (R^2 = .35).

Table 13 shows the results of the final regression model, which explored the predictors of a sense of well-being derived from *Behavioral Aesthetics*. Three variables were found to contribute to *Behavioral Aesthetics*, with the most significant predictor an experienced *Meaning in Life: Presence*. Notably, the second predictor, *Meaning in Life: Search*, has a negative relationship with well-being from *Behavioral Aesthetics* (β = -.18), suggesting that those searching for meaning are less likely to experience this form of well-being. The final predictor of *Behavioral Aesthetics* was *Envisioning: Thriving Community* (β = .12), indicating that those respondents

Table 11. Dependent Variable: *Intrinsic Satisfaction From Community Food*

Independent Variable	B	SE B	β	p
Envisioning: Gardens	.53	.08	.42	.000
Planned Agriculture Community Experience	.14	.04	.25	.000
Income	-.07	.03	-.17	.008
Meaning in Life: Presence	.17	.08	.13	.038
R^2	.34			
Adj. R^2	.32			
F	23.51*			

* F-test is significant at F ≤ .05

Table 12. Dependent Variable: *Intrinsic Satisfaction From Participation*

Independent Variable	B	SE B	β	p
Meaning in Life: Presence	.38	.05	.43	.000
Envisioning: Thriving Community	.43	.08	.34	.000
Meaning in Life: Search	.15	.04	.25	.000
Cooperative Living Experience	.07	.03	.16	.007
R^2	.35			
Adj. R^2	.34			
F	24.78*			

* F-test is significant at F ≤ .05

Table 13. Dependent Variable: *Behavioral Aesthetics*

Independent Variable	B	SE B	β	p
Meaning in Life: Presence	.40	.04	.54	.000
Meaning in Life: Search	-.09	.03	-.18	.003
Envisioning: Thriving Community	.12	.06	.12	.050
R^2	.38			
Adj. R^2	.37			
F	37.85*			

* F-test is significant at F ≤ .05

who value these community-based social structures are modestly more likely to experience greater psychological well-being. This model explains 38% of the variance in well-being in the form of *Behavioral Aesthetics* (R^2 = .38).

Discussion

This data has been interpreted and organized into three primary themes:

1. Intentional community living and psychological health;
2. Food system engagement, intrinsic satisfactions, and well-being;
3. Communications and recruitment strategies for intentional community developers.

This section is intended for those planning and/or working in intentional communities. It may also inform the practices of those working in organizations involved in local food systems and other environmental issues.

Intentional Community Living and Psychological Health

The increased social connectedness that results from living in an intentional community likely leads residents to experience feeling greater psychological health and well-being. According to the survey results, there seems to be a positive relationship between living in an intentional community and heightened psychological health. Overall, the survey respondents demonstrated high psychological well-being (Table 5, *Behavioral Aesthetics*, M = 4.01) and experienced a high degree of meaning in their lives (Table 6, *Meaning in Life: Presence*, M = 4.08).

These positive psychological health outcomes are possibly due to the significant social benefits associated with living in an intentional community. This interpretation is supported by the high rates of intrinsic satisfaction associated with community living, such as heightened sense of social connection and of one's actions being meaningful and purposeful (Table 3, *Community Connection*, M = 4.41; *Participation*, M = 4.30). This interpretation is also consistent with past research that has demonstrated that social and community support is crucial for ongoing psychological well-being and health

(Sameroff & Rosenblum, 2006). In summary, intentional community residents report experiencing heightened satisfaction from social support likely due to their close-knit community structures. This support likely influences and increases the psychological health—such as well-being and a sense of meaning—experienced by community members.

Food Engagement, Intrinsic Satisfactions, and Well-Being

Intentional community residents report that engaging in local food systems is intrinsically satisfying to them, though this engagement does not yield increased psychological well-being. Many intentional communities that engage in ecological resilience also prioritize involvement in local food systems. This may involve buying food from local farmers, volunteering at farms, or purchasing CSA shares. However, the role of such engagement in increasing intrinsic satisfaction and psychological well-being has not been previously studied.

Generally, this study shows a positive relationship between *Food Engagement* and two intrinsic satisfactions: those derived from *Community Food* and from *Participation* (Table 8, R^2 = .24; Table 9, R^2 = .15). However, we note that *Food Engagement* is a behavioral concept and satisfaction from *Community Food* is a motivation. Satisfaction from *Community Food* derives from both the social and personal benefits of engaging in gardening and other food-related activities. In addition, those who engage in local food systems are likely to derive satisfaction from *Participation* because they feel like they are involved in an important, large-scale movement while also contributing positively to their local community. Thus, the link between *Food Engagement* and intrinsic satisfactions has policy implications: involvement in local provisioning can be promoted by leveraging the motivations embedded in those same behaviors.

There is not a strong relationship between *Food Engagement* and *Behavioral Aesthetics*, a measurement of psychological well-being (Table 10, R^2 = .09). This suggests that engagement in local food systems does not directly contribute to individual psychological well-being. It seems that these activities instead result in satisfaction from fulfilling individ-

ual desires and motivations, such as wanting to grow food with one's community or to participate in a movement. However, these activities and satisfactions do not seem to contribute meaningfully to individual psychological health.

It is worth noting that other variables in the study supplement the measured intrinsic satisfactions and well-being. For example, *Meaning in Life: Presence* contributed to intrinsic satisfaction from *Community Food* and *Participation*, and well-being from *Behavioral Aesthetics* (Table 11, R^2 = .34; Table 12, R^2 = .35; Table 13, R^2 = .38). The sense of having meaning in one's life likely provides a sense of purpose that contributes positively to these variables.

Communications and Recruitment Strategies for Intentional Community Developers

Based on survey data, intentional community residents would be supportive of communications emphasizing the importance of community living and the value of sustainable living to protect environmental health. When developing communication and recruitment plans to attract new members to an intentional community, it is important to consider the profile of the typical person who would be interested in joining this kind of community. Communications and marketing materials can be crafted to emphasize messaging that is likely to resonate with this audience after better understanding their values and motivations.

Communitarian values are repeatedly emphasized in the survey data, such as the significant amount of intrinsic satisfaction gained from connecting with one's community and the significant inclusion of vibrant community features in an ideal future (Table 3, *Community Connection*, M = 4.41; Table 4, *Thriving Community*, M = 4.67). Other significant themes that may inspire individuals are finding intrinsic satisfaction from *Participation*, and satisfaction from contributing to a larger goal or purpose (Table 3, *Participation*, M = 4.30).

Finally, it is worth noting that the typical intentional community resident finds meaning in adopting a sustainable lifestyle and using far fewer resources (Table 3, *Sustainable Living*, M = 4.20; *Frugality*, M = 4.10). Residents are less likely to find meaning in modern conveniences but seem unwilling to fully give them up (Table 3, *Luxuries*, M = 2.42). However, the respondents generally did not report perceiving advertising or a heightened corporate presence in their ideal future (Table 4, *Consumerism*, M = 1.55), suggesting that they are not envisioning a materialistic future or interested in needless purchases. In marketing materials, intentional community planners are advised to highlight the sustainable features of the community, especially those related to sharing with others in order to reduce resource use or wasteful purchasing (e.g., a tool library).

Research Limitations and Future Directions

The survey data was limited by the number of responses received on a per community basis. Almost all intentional communities studied had a relatively low number of residents complete the survey. This may have skewed the data in that individuals who completed the survey may have had more time available, perhaps due to being older or wealthier than other residents. Furthermore, the low number of respondents per intentional community limits data analysis by restricting the statistical capacity to derive meaningful comparisons among communities and types of communities.

Future research might investigate psychological trends within intentional communities to determine if they are congruent with the explicitly ratified goals of the community, thereby causing some to prosper and others to fail. In addition, future research might include interviewing and surveying those interested in and supportive of intentional communities but who have not yet joined any, to further inform communication and recruitment tactics used by intentional community planners.

Finally, intentional community research must expand to communities other than those operating within a traditional physical and planned framework. For example, this could include "living in place" communities: groups of people who have developed a significant social bond while living in their existing homes and trying to tackle difficult cultural, environmental, and political issues. In contrast to the conventional idea of an intentional community—if such a convention exists—new structures on new parcels of land may not be built or even need to be built. It is necessary to explore

this alternative approach to creating an intentional community because of the unsustainability of new development, due both to the required physical and energy resources as well as the use of land that could otherwise be used for provisioning to protect against food insecurity (Preservation Green Lab, 2011; Smith & Gregory, 2013).

Conclusion

Intentional communities provide exciting opportunities for individuals to embrace alternative community solutions while prioritizing shared values. This research confirms positive consequences of living in such communities which have a gardening or food provisioning focus, as their residents report beneficial psychological health outcomes.

The results also suggest that resident participation in local food systems can be increased through highlighting various personal and social benefits that are associated with this engagement. Finally, those seeking to start their own intentional community or recruit new residents should emphasize community features associated with social and environmental benefits, as these qualities most often drew current residents to their communities or were part of the ideal futures that these residents imagined for their communities.

Acknowledgments

References

Anson, O., Levenson, A., Maoz, B., & Bonneh, D. Y. (1991). Religious community, individual religiosity, and health: A tale of two kibbutzim. *Sociology*, *25*(1), 119–132. https://doi.org/10.1177/0038038591025001007

Brown, S. L. (2002). Introduction. In S. L. Brown (Ed.), *Intentional community: An anthropological perspective* (pp. 1–15). State University of New York Press.

Clarke, P. J., Marshall, V. W., Ryff, C. D., & Wheaton, B. (2001). Measuring psychological well-being in the Canadian Study of Health and Aging. *International Psychogeriatrics*, *13*(Suppl. 1), 79–90. https://doi.org/10.1017/S1041610202008013

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, *16*(3), 297–334. https://doi.org/10.1007/BF02310555

De Young, R. (1996). Some psychological aspects of reduced consumption behavior: The role of intrinsic satisfaction and competence motivation. *Environment and Behavior*, *28*(3), 358–409. https://doi.org/10.1177/0013916596283005

De Young, R. (2000). Expanding and evaluating motives for environmentally responsible behavior. *Journal of Social Issues*, *56*(3), 509–526. https://doi.org/10.1111/0022-4537.00181

De Young, R. (2012). Motives for living lightly. In R. De Young & T. Princen (Eds.), *The localization reader: Adapting to the coming downshift* (pp. 223–231). The MIT Press.

De Young, R. (2019). Supporting behavioral entrepreneurs: Using the biodiversity-health relationship to help citizens self-initiate sustainability behavior. In M. R. Marselle, J. Stadler, H. Korn, K. N. Irvine, & A. Bonn (Eds.), *Biodiversity and health in the face of climate change* (pp. 295–313). Springer.

Hall, R. (2015). The ecovillage experience as an evidence base for national wellbeing strategies. *Intellectual Economics*, *9*(1), 30–42. https://doi.org/10.1016/j.intele.2015.07.001

Howell, R. A. (2013). It's *not* (just) "the environment, stupid!" Values, motivations, and routes to engagement of people adopting lower-carbon lifestyles. *Global Environmental Change*, *23*(1), 281–290. https://doi.org/10.1016/j.gloenvcha.2012.10.015

King, L. A., Hicks, J. A., Krull, J. L., & Del Gaiso, A. K. (2006). Positive affect and the experience of meaning in life. *Journal of Personality and Social Psychology*, *90*(1), 179–196. https://doi.org/10.1037/0022-3514.90.1.179

Kirby, A. (2003). Redefining social and environmental relations at the Ecovillage at Ithaca: A case study. *Journal of Environmental Psychology*, *23*(3), 323–332. https://doi.org/10.1016/S0272-4944(03)00025-2

Kozeny, G. (1995). *Intentional communities: Lifestyles based on ideals.* Fellowship of Intentional Communities. http://articles-and-essays.s3.amazonaws.com/Intentional+community+/G-Kozeny-lifestyles-based-on-ideals.pdf

Litfin, K. T. (2012). A whole new way of life: Ecovillages and the revitalization of deep community. In R. De Young & T. Princen (Eds.), *The localization reader: Adapting to the coming downshift* (pp. 129–140). The MIT Press.

Lovell, R., Husk, K., Bethel, A., & Garside, R. (2014). What are the health and well-being impacts of community gardening for adults and children: A mixed method systematic review protocol. *Environmental Evidence*, *3*(1), Art. 20. https://doi.org/10.1186/2047-2382-3-20

Lyson, T. A. (2000). Moving toward civic agriculture. *Choices*, *15*(3), 42–45. https://doi.org/10.22004/ag.econ.132154

Mascaro, N., & Rosen, D. H. (2005). Existential meaning's role in the enhancement of hope and prevention of depressive symptoms. *Journal of Personality*, *73*(4), 985–1013. https://doi.org/10.1111/j.1467-6494.2005.00336.x

Meadows, D. (1994, October). *Envisioning a sustainable world* [Paper presentation]. International Society for Ecological Economics 3rd Biennial Meeting, San Jose, Costa Rica. https://donellameadows.org/archives/envisioning-a-sustainable-world/

Meadows D. (2012). Tools for the transition. In R. De Young & T. Princen (Eds.), *The localization reader: Adapting to the coming downshift* (pp. 309–324). The MIT Press.

Metcalf, B. (2012). Utopian struggle: Preconceptions and realities of intentional communities. In M. Andreas & F. Wagner (Eds.), *Realizing utopia: Ecovillage endeavors and academic approaches* (pp. 21–28). Rachel Carson Center (RCC) Perspectives No. 8. https://doi.org/10.5282/rcc/5598

Mulder, K., Costanza, R., & Erickson, J. (2006). The contribution of built, human, social and natural capital to quality of life in intentional and unintentional communities. *Ecological Economics*, *59*(1), 13–23. https://doi.org/10.1016/j.ecolecon.2005.09.021

Obach, B. K., & Tobin, K. (2014). Civic agriculture and community engagement. *Agriculture and Human Values*, *31*(2), 307–322. https://doi.org/10.1007/s10460-013-9477-z

Ouellette, P., R. Kaplan & S. Kaplan (2005). The monastery as a restorative environment. *Journal of Environmental Psychology*, *25*(2), 175–188. https://doi.org/10.1016/j.jenvp.2005.06.001

Preservation Green Lab. (2011). *The greenest building: Quantifying the environmental value of building reuse* [Report]. Preservation Green Lab, National Trust for Historic Preservation. https://living-future.org/wp-content/uploads/2022/05/The_Greenest_Building.pdf

Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology*, *69*(4), 719–727. https://doi.org/10.1037/0022-3514.69.4.719

Saldivar-Tanaka, L., & Krasny, M. E. (2004). Culturing community development, neighborhood open space, and civic agriculture: The case of Latino community gardens in New York City. *Agriculture and Human Values*, *21*(4), 399–412. https://doi.org/10.1007/s10460-003-1248-9

Sameroff, A. J., & Rosenblum, K. L. (2006). Psychosocial constraints on the development of resilience. *Annals of the New York Academy of Sciences*, *1094*(1), 116–124. https://doi.org/10.1196/annals.1376.010

Sanguinetti, A. (2014). Transformational practices in cohousing: Enhancing residents' connection to community and nature. *Journal of Environmental Psychology*, *40*, 86–96. https://doi.org/10.1016/j.jenvp.2014.05.003

Sheldon, K. M., Nichols, C. P., & Kasser, T. (2011). Americans recommend smaller ecological footprints when reminded of intrinsic American values of self-expression, family, and generosity. *Ecopsychology*, *3*(2), 97–104. https://doi.org/10.1089/eco.2010.0078

Smith, P., & Gregory, P. J. (2013). Climate change and sustainable food production. *Proceedings of the Nutrition Society*, *72*(1), 21–28. https://doi.org/10.1017/S0029665112002832

Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The Meaning in Life Questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology*, *53*(1), 80–93. https://doi.org/10.1037/0022-0167.53.1.80

Veen, E. J., Bock, B. B., Van den Berg, W., Visser, A. J., & Wiskerke, J. S. C. (2015). Community gardening and social cohesion: Different designs, different motivations. *Local Environment*, *21*(10), 1271–1287. https://doi.org/10.1080/13549839.2015.1101433

Wood, C. J., Pretty, J., & Griffin, M. (2016). A case–control study of the health and well-being benefits of allotment gardening. *Journal of Public Health*, *38*(3), e336–e344. https://doi.org/10.1093/pubmed/fdv146

Yong, A. G., & Pearce, S. (2013). A beginner's guide to factor analysis: Focusing on exploratory factor analysis. *Tutorials in Quantitative Methods for Psychology*, *9*(2), 79–94. https://doi.org/10.20982/tqmp.09.2.p079

Appendix. Supplemental Regression Tables

Table A1. Dependent Variable: *Food System Engagement*

Independent Variable	Model 1				Model 2				Model 3				Model 4				Model 5			
	B	SE B	β	p	B	SE B	β	p	B	SE B	β	p	B	SE B	β	p	B	SE B	β	p
Planned Agricultural Community Exp.	.21	.05	.31	.000	.20	.05	.29	.000	.19	.05	.29	.000	.20	.05	.29	.000	.20	.05	.30	.000
Meaning in Life: Presence					.33	.11	.21	.003	.38	.11	.24	.001	.34	.11	.22	.002	.30	.11	.20	.005
Age									-.11	.05	-.16	.021	-.14	.05	-.20	.005	-.14	.05	-.19	.006
Income													.08	.03	.16	.022	.10	.03	.21	.004
Envisioning: Gardens																	.24	.10	.16	.021
R^2	.10				.14				.17				.19				.21			
Adj. R^2	.09				.13				.15				.17				.19			
F*	20.19				15.22				14.1				12.2				10.87			

* All F-tests are significant at F ≤ .05

Table A2. Dependent Variable: *Intrinsic Satisfaction From Community Food*

Independent Variable	Model 1				Model 2			
	B	SE B	β	p	B	SE B	β	p
Food System Engagement	.30	.05	.36	.000	.33	.05	.40	.000
Income					−.13	.02	−.33	.000
R^2	.13				.24			
Adj. R^2	.12				.23			
F	29.75*				31.3*			

* All F–tests are significant at F ≤ .05

Table A3. Dependent Variable: *Psychological Well-Being Behavioral Aesthetics*

Independent Variable	Model 1				Model 2			
	B	SE B	β	p	B	SE B	β	p
Food System Engagement	.13	.03	.27	.000	.14	.03	.29	.000
Age					.05	.02	.15	.027
R^2	.07				.09			
Adj. R^2	.07				.09			
F	15.62*				10.43*			

* All F–tests are significant at F ≤ .05

Table A4. Dependent Variable: *Intrinsic Satisfaction From Participation*

Independent Variable	Model 1				Model 2				Model 3				Model 4			
	B	SE B	β	p	B	SE B	β	p	B	SE B	β	p	B	SE B	β	p
Meaning in Life: Presence	.34	.06	.39	.000	.32	.06	.37	.000	.36	.05	.42	.000	.38	.05	.43	.000
Envisioning: Thriving Community					.42	.08	.33	.000	.41	.08	.32	.000	.43	.08	.34	.000
Meaning in Life: Search									.15	.04	.25	.000	.15	.04	.25	.000
Cooperative Living Experience													.07	.03	.16	.007
R^2	.15				.26				.32				.35			
Adj. R^2	.15				.26				.31				.34			
F	33.95*				33.37*				29.56*				24.78*			

* All F–tests are significant at F ≤ .05

Table A5. Dependent Variable: *Intrinsic Satisfaction From Community Food*

Independent Variable	Model 1				Model 2				Model 3				Model 4			
	B	SE B	β	p	B	SE B	β	p	B	SE B	β	p	B	SE B	β	p
Envisioning: Gardens	.60	.08	.48	.000	.59	.08	.47	.000	.55	.08	.44	.000	.53	.08	.42	.000
Planned Agriculture Community Experiences					.16	.04	.28	.000	.15	.04	.27	.000	.14	.04	.25	.000
Income									–.06	.03	–.14	.027	–.07	.03	–.17	.008
Meaning in Life: Presence													.17	.08	.13	.038
R^2	.23				.30				.32				.34			
Adj. R^2	.22				.30				.31				.32			
F	54.91*				40.65*				29.34*				23.51*			

* All F–tests are significant at F ≤ .05

Table A6. Dependent Variable: *Psychological Well-Being Behavioral Aesthetics*

Independent Variable	Model 1				Model 2				Model 3			
	B	SE B	β	p	B	SE B	β	p	B	SE B	β	p
Meaning in Life: Presence	.43	.04	.58	.000	.41	.04	.55	.000	.40	.04	.54	.000
Meaning in Life: Search					–.09	.03	–.17	.004	–.09	.03	–.18	.003
Envisioning: Thriving Community									.12	.06	.12	.050
R^2	.34				.37				.38			
Adj. R^2	.34				.36				.37			
F	95.60*				53.98*				37.85*			

* All F–tests are significant at $F \leq .05$

![JAFSCD logo]

Suburban agriculture, immigrant farmers, and access to agricultural services and resources

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Abstract

While agricultural services are shrinking, the number of nontraditional farms run by immigrant farmers is rising in U.S. suburban regions. This study attempts to understand Chinese immigrant farmers' experience accessing agricultural services and resources in the New York metropolitan area and explores the need for changes in agricultural services to meet changing demand. Thirteen Chinese immigrant farmers in the region were recruited to participate in a semi-structured interview to understand their shared experiences of accessing agricultural services and resources. The study identified diverse ways of accessing agricultural services and

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resources in four critical areas of farming operations: agricultural technology, financial services, farm labor, and farming machinery; and also revealed the existence of "liability of newness" among those new immigrant farmers in operating farms. Most participants felt that they were isolated, with limited access to available services as new immigrant farmers, which constitutes the liabilities to their success in farming. Language barriers, cultural differences, distrust, and isolation were the main obstacles to access adequate services and resources. As farms and farmers are becoming more diverse in U.S. suburban regions, the provision of agricultural services needs to adapt accordingly to meet the growing needs of groups of farmers with varying farming experiences and demographic backgrounds and help them to overcome the liabilities as new immigrant farmers. This study contributes to understanding the farming experiences of minority farm groups, which help develop more inclusive agricultural services.

Keywords
Suburban Agriculture, Chinese Immigrant Farmers, Farming Experiences, Agricultural Services and Resources, Qualitative Research, Liability of Newness, Descriptive Phenomenology

Introduction
The demographic composition of farmers in the U.S. is changing. According to the U.S. Department of Agriculture Census of Agriculture, while 95.4% of farm operators in 2017 were white, non-white farmers increased significantly, by 20% from 2007 to 2017 (Census of Agriculture 2017 Highlights, 2019b). Although Asians were only 9.4% of non-white farmers in 2017, the number of Asian principal operators had increased 24.2% from 2012 to 2017 (Census of Agriculture 2017 Highlights, 2019a). More than half of Asian-operated farms are in suburban regions and produce specialty crops (Li, 2013; Census of Agriculture 2017, 2019a). Farms operated by Chinese immigrants are increasing for several reasons. First, the demand for ethnic and better-quality food products from the immigrant communities is expanding (Aldrich & Waldinger, 1990) as acceptance of Chinese culture and foods increases.

(Coe, 2009). As discussed by Imbruce (2016), the development of the ethnic food network in New York City's Chinatown has been sustained by a global food and farm network that includes immigrant farms across the U.S. and global food supply chains. Second, there have been limited employment opportunities for low-skilled immigrants (Aldrich & Waldinger, 1990; Sanders & Nee, 1996), so self-employment through small-scale farming became a practical way of living because of inherited entrepreneurship, readily available human capital, and lower barriers to entering farming in terms of skills and investment (Hightower & Brennan, 2013; Salaff et al., 2003; Zhang, 2016). Third, farming is increasingly considered a leisure and investment opportunity in many suburban regions where farmlands have become scarce and their value has appreciated (Nickerson et al., 2012), attracting some high-skilled and affluent Chinese immigrants to farming.

Immigrant farmers tend to run smaller operations that grow specialty crops and have direct access to markets, and that use alternative farming techniques such as multi-cropping and low agro-chemical inputs, differing from U.S. industrial agriculture (Imbruce, 2016; Minkoff-Zern, 2018, 2019). Thus, despite strong governmental support for farming through provisions of the U.S. Farm Bill and from U.S. Department of Agriculture agencies such as the Farm Services Agency and the Natural Resources Conservation Service, Latino immigrant farmers, for example, are often left out of various governmental programs; the lack of standards in their farming practice and their racialized identities are attributed to racial exclusion (Minkoff-Zern & Sloat, 2017; Zabawa et al., 2007). The fast growth of farms operated by immigrants re-ignites the debate on racial identity, immigration, and sustainability in a new perspective challenging not only conventional agrarian development theories, but also U.S. agricultural programs and policies (Agyeman & Giacalone, 2020; Horst & Marion, 2019; Imbruce, 2016; Minkoff-Zern, 2018, 2019; Minkoff-Zern et al., 2020; Ploeg, 2018; Reynolds, 2002; Seda, 2020). However, there is limited knowledge of the unique experiences of minority immigrants as farmers rather than as farm laborers. More research is needed to understand the lived

experiences of racialized farmer groups. (Minkoff-Zern, 2018).

The objective of this study is to explore the farming experiences of Chinese immigrant farmers, specifically their experiences accessing U. S. agricultural services and resources. It is expected that the number of farms operated by the Chinese and other immigrants will continue to increase and play an increasing role in the future agricultural economy. Their growth depends on their ability to access essential resources such as farming knowledge and technology, financial and farm labor services, and farming machinery. Some studies have explored the experiences and contributions of Chinese immigrants as farm labor (Leung & Ma, 1988; Tsu, 2013) or agents in the ethnic food network (Imbruce, 2016), but there is no study specifically dedicated to investigating the farming experiences of Chinese immigrant farmers as principal. A thorough understanding of their farming experiences would help develop more effective sustainable and inclusive agricultural extension and education services.

Theoretical Framework

In his seminal discussion of the "struggle for survival" in the evolution of organizations, Stinchcombe (1965) introduced the "liability of newness" concept to explain the high failure rate of organizations in the early stages of their life cycles. Lack of knowledge, experience, capital capacity, and lack of cooperation with and trust of "strangers"—i.e., older organizations—could potentially contribute to organization failure; therefore, social and economic supports are critical to enhance the survival chances of emerging organizations (Abatecola et al., 2012; Stinchcombe, 1965). Despite its significant impact on research on organizational evolution, the liability of newness concept has rarely been applied to study the evolution of agricultural enterprises. This study applies the liability of newness concept to assess the experiences of Chinese immigrant farmers in accessing agricultural services and resources to operate their farming enterprises. As with any early-stage enterprises, the emerging farms run by Chinese immigrants possess many liabilities that could lead to failure, such as lack of farming knowledge and

experiences, financial resources, and a well-established social network to access agricultural resources and services. More extensive understanding of these liabilities will help construct social, economic, technical, and political "macro-structure," especially provision of agricultural extension services that better support the healthy growth of these immigrant agricultural enterprises.

Methods

This study applied a descriptive phenomenology approach to understand the lived experiences of the Chinese immigrant farmers in accessing services and resources in the broad U.S. agricultural production system. Understanding the farming experiences of Chinese immigrant farmers would help provide evidence for future policy changes and additional research to enhance the provision of agricultural resources and services. Phenomenology is a qualitative research method aimed at understanding the explicit and implicit structures and meanings of human experience (Conklin, 2007; Sokolowski, 2000). Descriptive phenomenology explores individuals' experiences of everyday life, describes the structure of such experiences, and provides a thorough understanding of shared experiences (Sokolowski, 2000). Phenomenology has been applied in various agricultural research settings, describing, for example, farmer experiences of being environmental stewards (Hanson, 2001), growing organic produce (Marabesi & Kelsey, 2019), pursuing agritourism entrepreneurship (Ainley, 2014), and even understanding perceived barriers to fertilizer use in Uganda (Mulvaney & Kelsey, 2020). This study followed the essential principles of Husserlian descriptive phenomenology (Husserl, 1962): "natural knowledge begins with experience and remains within experience" (p. 45), "every experience…has intentionality" (p. 222), "essential universality" (p. 47), or "essential generality" (p. 53) and "can be exemplified intuitively in the data of experience" (p. 50).

The study was conducted in the New York metropolitan area (NYMA), a popular destination for Chinese immigrants. NYMA is the largest metropolitan region in the U.S. and is comprised of New York City and surrounding counties in New York, New Jersey, Connecticut, and Pennsylvania.

Chinatown in Manhattan, New York, was one of the earliest settlements for Chinese immigrants in the U.S. Flushing, in Queens, is a newly developed Chinatown and is expanding in size. New Jersey is also a popular home for Chinese immigrants. Mott Street in Chinatown is a regional distribution center and hosts wholesalers and retailers of agricultural products preferred by Chinese immigrants and their families. Although suppliers of the agricultural products include farms in Florida, California, and even South America, most seasonal agricultural products sold on Mott Street are produced in New Jersey. As such, all participants in the study but one were Chinese immigrant farmers from New Jersey; the remaining participant was from New York.

Data Collection

The number of farms operated by Chinese immigrants is still relatively small in the NYMA. Therefore, we adopted a snowball approach to recruit participants for the study. We secured the first group of participants through immediate personal and professional contacts. We followed the recommendations of the first group of participants to secure the second group of participants and so on until the threshold number of participants was reached. All participants met the following criteria: (1) first- or second-generation immigrants from China Mainland, Taiwan, Hong Kong, and Macao, (2) primary farm operators themselves at least 21 years old, and (3) ability to communicate in Mandarin Chinese.

Following a descriptive phenomenological approach (Dory et al., 2017; Fu et al., 2008), semi-structured interviews were conducted with the Chinese immigrant farmers to understand their farming experiences of accessing agricultural services and resources. A key step in applying descriptive phenomenology is not to introduce bias and preconceptions to participants. Therefore, the phenomenological reduction strategy of "bracketing" was adopted in the interview question design and interviewing process, in which existing knowledge and researchers' personal understanding of farming experiences was intentionally bracketed out (Denzin, 1989; Dory et al., 2017; Fu et al., 2008, 2009). The interview questions were carefully designed without directly asking the participants

whether they can access agricultural services and resources. Instead, we elicited their experiences using such open-end inquiries as "please introduce yourself," "please describe your farm," "please describe your experiences of accessing agricultural services in the local area," and "please describe your experience of accessing agricultural services and resources from governments."

The interview questionnaire and guide were first developed in English for evaluation and approval by the Institutional Review Board (IRB) at New Jersey Institute of Technology in Newark, New Jersey and then professionally translated into Chinese for interviews after IRB approval. The interviews were conducted in Mandarin Chinese. Informed consent was secured from all participants following approved IRB guidelines to ensure privacy. A nominal one-time payment was given to each participant to compensate for the time spent for the interview. All interviews were conducted in private settings. A coding system with numbers instead of participant names was used to ensure confidentiality. Participant recruitment and interviews occurred between June and August 2017. Following Dory et al. (2017), each interview lasted from 40 to 120 minutes and was recorded using a digital audio device. Observational data for each participant were also recorded. All the interviews were professionally transcribed in Chinese and checked for accuracy. The researchers are fluent in both Chinese and English.

Thirteen participants, one woman and 12 men, were interviewed (Table 1). Age of the participants ranged from 27 to 73 and was 51.5 years old on average. Five participants immigrated from Taiwan, seven from the Chinese mainland, and one was born in the U.S. and inherited the farm from his father. All participants, except one, had higher education degrees: Five bachelors, five masters, and two Ph.Ds. Ten participants worked on farming full-time and three part-time. Most were first-time farmers with limited farming experience. They grew a variety of products, including vegetables, flowers, mushrooms, oysters, grapes, and edamame. The average size of their farms was 41.5 hectares (ha); the smallest farm was 2.4 ha and the largest was 161.9 ha.

The sample size for this descriptive phenome-

nological study, i.e., the threshold number of participants, was "determined by the richness and saturation of the interview data, that is, when the same information has been repeated by the participants…regarding the description of their experiences" (Dory et al., 2017, p. 3). Strong convergence emerged when interviewing the 13th participant. To ensure that all important information was captured, we conducted a second-round interview using the same interview questions with one of the 13 participants. Data saturation was assured as no new information emerged in the second-round interview.

Data Analysis

The transcribed interview data were analyzed with a descriptive qualitative method based on intuitive reflections and strategies of continuously "comparing and distinguishing, collecting and counting, presupposing and inferring" (Husserl, 1962, p. 93). Crucial to this method is systematically classifying data into fewer content-related themes that share the same meaning, which are coded in color and text (Dory et al., 2017). We followed the seven-step data analysis procedure described by Dory et al. (2017) and Fu et al. (2008, 2009) to examine data, compare codes, challenge interpretations, and

inductively develop themes. We first individually read the transcripts in Chinese several times to gain a broad understanding of the text, and then met to identify significant quotations and discuss key codes related to the research question. The first author took the initiative to combine the coded quotations into one file and confirm the accuracy of the code and quotation by comparing to the original transcript. Then we individually analyzed the quotation files and identified major themes by putting key coded quotations together for each research question. We then met as a group to review major themes and discuss them to resolve any discrepancies, and to review the transcripts and validate the structure of themes alongside interview data. Multiple discussions were followed until consensus was achieved about each aspect of data analysis. The specific themes, codes, and quotations were translated from Chinese to English and reported in the Results section. Efforts were made to differentiate and compare the experiences of the 13 subjects, with careful selections of text demonstrating the true meaning of their experiences.

Results

The 13 participants represented the diversity of farms operated by immigrants in the region. First,

Table 1. Participants and Their Demographics and Farm Characteristics

ID	Gender	Age	Education	Farming Career	Starting Year	Size (ha)	Products	Organic Farming
P1	M	39	Ph.D.	Part-time	2015	25.9	Vegetables	Yes
P2	M	69	Bachelor	Full-time	1991	16.2	Nursery/Vegetables	Yes
P3	M	50	Bachelor	Full-time	2000	121.4	Vegetables	Yes
P4	F	50	Master	Part-time	2013	9.3	Vegetables	Yes
P5	M	73	Master	Full-time	2010	2.4	Nursery	—
P6	M	66	Master	Full-time	2005	8.1	Nursery	—
P7	M	45	Bachelor	Full-time	2000	61.1	Vegetables	No
P8	M	53	Bachelor	Full-time	2016	13.6	Mushrooms	Yes
P9	M	27	Master	Full-time	2001	19.0	Mushrooms	Yes
P10	M	31	Ph.D.	Full-time	2016	161.9	Edamame	Yes
P11	M	63	K–12	Full-time	2008	40.5	Vegetables	No
P12	M	53	Bachelor	Full-time	2001	20.2	Oysters	—
P13	M	50	Master	Part-time	2010	40.1	Vineyard	—
Average		51.5				41.5		

their personal backgrounds were diverse, ranging from high-skilled immigrants, such as computer programmers, newspaper reporters, and entrepreneurs to low-skilled immigrants who had previously worked in Chinese restaurants and grocery stores in New York City. Four participants were highly educated in agriculture and aquaculture and immigrated to the U.S. as agricultural specialists. Second, the organizational form of those farms was diverse. Three farms were corporations that operated like most modern enterprises: the owners did not directly operate the farm but entrusted it to professional farmers or farm managers. The other ten, family farms, were mainly operated by family members. Third, their business objectives were diverse. Most participants made a living by farming, but some operated farms for leisure and investment purposes. Such diverse personal backgrounds, organizational forms, and business objectives resulted in diverse ways to access agricultural resources and services.

Theme 1: Accessing farming knowledge and agricultural technology

Regardless of prior background in farming, it is a new undertaking for immigrants to operate a farm in the U.S., which involves new knowledge, including of plants, soils, climate, diseases, rules and regulations, and farming technologies. Agriculture is driven by advances in agricultural technology, and access to agricultural technologies is important for improving agricultural productivity and profitability. This study identified four ways of accessing farming knowledge and technology by the participants.

Obtaining technical support from public service agencies
The agricultural experiment stations and cooperative extension services have offices with experienced staff to offer science-based education programs and bring the wealth of knowledge of state land-grant universities to farmers and communities. Out of the 13 participants, two had obtained support from public or university extension service. They found that science-based education programs were useful and the extension agents helpful. Participant P2 stated that he had participated in various workshops organized by county agricultural

extension agents, who were "between governments and farmers and help spread information from governments to farmers, and also help introduce new products or technologies to farmers." Participant P2 added: "If you have any problem or any difficulty, you can always call them. They will help you sort the problem out." Participant P5 agreed: "If you have any problems such as pest and disease issues and don't know what to do; or you don't even know what the problem is, then you can just take some samples and sit down with an agricultural extension agent."

Learning from other farmers
In the peer learning practice, farmers interact with other farmers in a community to obtain farming knowledge, which has proven to be one of the most effective ways for farmers to learn and master agricultural technology (Faysse et al., 2012; Foster & Rosenzweig, 1995). Many participants maintained good relationships with neighboring farmers and gained knowledge and skills from them. For example, one participant learned pest control techniques from a farmer neighbor. To gain knowledge and technology from other farms, some farmers "visited and consulted with other farmers" (P7), "temporarily worked for other farms or greenhouses" (P5), or "collaborated with a local large organic farm" (P10). In addition to direct learning from others, some participants relied on social media to gain knowledge. For example, participant P4 mentioned a WeChat (a popular social media platform among Chinese immigrants) group for communication on agricultural technology that included a professor of agronomy and other local Chinese immigrant farmers.

Relying on prior personal farming experiences
Experience is an essential dimension of human capital and critical to the operation of an enterprise (Ainembabazi & Mugisha, 2014). Farming experience is a process through which farmers perceive and participate, accumulate knowledge, and adopt technologies. Five participants clearly indicated that they or their family members had farming experiences prior to immigration, which were helpful in their farm operations in the U.S. Participant P1 said, "My parents were vegetable farmers in China.

They have worked on vegetables their whole life in China and still love growing vegetables. During their visit to the U.S., they converted my backyard into a vegetable garden." He eventually bought a farm so that his experienced parents could work on it. Participant P11 said that he had been growing corn, sorghum, and hybrid rice for over ten years before coming to the U.S. Four participants have advanced degrees in agriculture-related fields, such as a master's degree in agronomy (P5, P6 and P9) and a doctorate degree in food science (P10). Participant P12 said, "I majored in fishery in college and came to the U.S. as an expert working in aquaculture."

Learning by doing
Regardless of their farming backgrounds, all participants had gone through the process of learning by doing, which plays a critical role in helping farmers to overcome technical barriers, learn agricultural technology, and accumulate farming knowledge (Foster & Rosenzweig, 1995). Participant P7 claimed he "did not know anything about farming at the beginning, had to gradually figure it out." Participant P6 described his whole farming experience as a learning by doing process: "From how to build a greenhouse to what to plant and how to plant, I had to figure it out gradually." Learning by doing is important not only for the less experienced farmers, but also for those experienced ones because farming practices, scales of production, and natural and socioeconomic environments differ considerably between their original countries and the U.S. One of the most experienced participants said, "For nearly 20 years, I have been gradually learning and improving" (P3). As a part of learning by doing, some participants would get agricultural knowledge by reading books and searching for information. "If I didn't know, I would try to find an answer from books" (P5). Most participants relied on "the internet to learn; whenever I had a technical issue, I would go online" (P1). Another participant said, "I could find solutions from books on most technical problems."

Despite diverse ways of accessing farming knowledge and agricultural technology, participants still had a lot to learn and needed support. For example, farmers in the region of the study generally control weeds using landscape fabric, mulch, and herbicides. However, many Chinese farm operators in the U.S. had just begun their farming career, and their knowledge of farming was very limited. Weed control was one of the biggest challenges they faced, as seven of 13 participants were specifically practicing organic farming. To manage organic farming, they "spent a lot of time to pull out the weeds" just as traditional Asian farmers have done; "pulling out the weeds is daily work" (P1). They also have limited knowledge for dealing with insects. To avoid pesticides, some participants sometimes used "tobacco and white vinegar to treat visible insects" (P4).

Theme 2: Accessing financial resources
Farming is a capital-intensive business. Capital is needed to upgrade farm equipment and pay for labor and materials, such as seeds and agrochemicals, often before any harvest. Flexible access to financial resources is critical to operating farms and improving productivity (Fakowski et al., 2010). The Chinese immigrant farmers in this study had diverse ways to access financial resources to support their operations.

Obtaining financial support through informal channel
Seven participants funded their operations through personal and family savings. Participant P7 "started from scratch and have gradually accumulated year after year." Another participant shared the same experiences of saving and reinvesting: "started from zero, saved dollar by dollar; and then slowly reinvest" (P5). To cover temporary shortage, many participants turned to relatives and friends to borrow "[US]$3,000 from one and [US]$5,000 from another" (P11) to maintain operations.

Accessing external financial services
To support farming operations, there are a variety of formal financial services, such as commercial banks and government-backed agricultural loan programs. For example, the Farm Service Agency (FSA) offers various loan programs to help start, expand, or maintain a family farm. In this study, only a few participants obtained government-backed, no-interest loans for farming machinery

purchases. Participant P1 "bought a tractor with a no-interest loan, which is helpful; it incurs no interest; I have five or six years to pay it off." Some participants participated in the Environmental Quality Incentive Program, with technical and financial assistance offered by Natural Resources Conservation Service (NRCS) and FSA, respectively. Discussing a high tunnel system built with such support, Participant P1 said, "It is very practical. The thousands of dollars subsidized by NRCS is very helpful." Participant P6 used a low-interest loan from a commercial bank to start and operate his greenhouse, but the bank was a foreign commercial bank that supports immigrants' entrepreneurship in the U.S.

Most participants are reluctant and/or unable to finance their farm operations through external and formal financial services. Participant P5 said that "local farmers may borrow government-backed agricultural loans from the U.S. banks, but we are not familiar with these loans and lending procedures. We have to rely on our own gradually accumulated savings." Eight participants clearly indicated that they had never applied for any governmental funding support. Some participants said that they even "did not know" the existence of such funding support. Participant P2 thought that "governmental assistance is very important…but I have been not aware of any assistance from agricultural department or farm bureau."

Theme 3: Accessing farm labor

Farming is a labor-intensive business. Stable access to farm labor is critical to operate a farm. However, demand for farming labor is often seasonal, making it difficult to maintain a stable labor force, especially for small farms. Two participants were content with their access to farm labor. Participant P6 had maintained a stable team of workers over many years. Participant P13 contracted all the farm work to a service company by signing a labor contract in advance. However, the labor shortage was the biggest problem encountered by all other participants; they had to be creative to obtain farm labor.

Relying on personal networks
Most participants simply engaged themselves and their family members more and intensified their

labor to overcome the shortage. Participant P4 said, "I am the laborer, and so is my husband." Participant P5 gave a more specific account: "My work is equivalent to three hired laborers…a typical laborer works 40 hours a week, but I work 80 hours a week. Additionally, my work efficiency is 50% higher than theirs." Participant P7 gave a specific example of stretching themselves to overcome the labor shortage: "At the busiest harvest time, we had to work overtime to prepare the shipment until one or one thirty in the morning. My father then drove to Chinatown. After coming back, he would sleep for a few hours before repeating the process again. At some point, he only slept eight hours in three days." Some participants would turn to their relatives and friends for help when immediate family labor was not sufficient. Participant P3 asked "Godmother's brothers, and Godfather and his relatives for help." Participant P1 pointed to a worker on the field on his farm: "She is my neighbor's mother. I asked her to work for me a few hours a day." Some participants sought help directly from their home country: "This is the farm owned by an elder of a family clan…Ten to twenty of his family members and/or relatives would visit the farm temporarily and provide timely help during the harvest season" (P3).

Go through formal channels
Some participants "put job advertisements in Chinese newspapers" to recruit labor from Chinese immigrant communities, and some used labor agencies to obtain temporary workers. Participant P7 said, "We hired temporary workers through a labor agency to do some low-skilled work like shipment preparation. There are minor skill requirements for temporary workers. They can come and go without big impacts on the operation."

Sharing labor force
Labor demand is seasonal, but timing varies by farms and their products. Some participants drew on timely availability to meet labor needs. Participant P3, who runs a vegetable farm, said that he often borrowed workers from a nearby friend who operated a horticultural farm: "We each have our own hired labor. When I am busy, I would ask him to send his workers to help. I do the same when he

is in high demand." Labor sharing is a creative way to overcome the conflict between seasonal labor demand and the desire to maintain a stable labor force.

Theme 4: Accessing farming machinery

Farming machinery improves agricultural productivity (Edgerton, 2009). However, our study found that participants generally had limited access to farming machinery.

Relying on self-service

Some participants pointed out that they had no money to buy machinery and had to use hand tools to work on the fields during the initial period of farming. Participant P1 said, "Local farmers found it funny. My neighbor, a local farmer, would imitate the way of using a hoe to remove the weeds every time he saw my father." Many participants gradually learned to purchase and use farming machinery to replace human labor. Participant P1 continued his story: "We initially bought a small tractor for my parents to use…I bought a tractor last fall…and this year I bought several used equipment and prepared the fields all by myself using those machines."

Obtaining external support

The participants also tried to access farming machinery services through their social networks. When necessary, participants would ask other farmers, especially neighboring farmers, for help. One participant asked his neighbor to prepare his fields for planting. His neighbor helped prepare the initial three-acre field of his vegetable farm with plowing and ridge making. Participant P4 turned to a farmer friend for timely use of heavy machinery: "A friend rented a bulldozer for a week, but finished his work early. Since we are not far away, I wanted to use it on my farm."

Although some participants such as P6, P10, and P13 were content with their needs for farming machinery and services, most participants encountered difficulties in obtaining services suitable to their small-scale operations. Participant P4 said, "I had a hard time to find a service provider who offers small combine or bulldozer. I don't need the big one. I finally found one, but they didn't want to

lease it to me only for a few days." As farming is a seasonal operation, some participants complained they could not get timely services from others: "These seeds had to be planted early, but the local farmer who provided me machinery services was busy with his work during the early planting season. He came to help me only after he finished all his work. Last year, it was in late May and early June when he came to build the ridges for planting" (P1).

Theme 5: Obstacles to Accessing Services and Resources

Despite growing interest in farming, Chinese immigrant farmers had practical difficulties in accessing necessary services and resources, largely due to their status as immigrants.

Isolation in production

Despite the diverse ways of operating farms and accessing services and resources, most participants generally are isolated when conducting their farming operations and rarely deal with broader farming communities. Most Chinese farms primarily produce special vegetables and oriental flowers to serve the growing demands of Chinese immigrant communities. As Participant P1 said, "Mexican goes to Mexican farms, Chinese goes to Chinese farms, and American goes to American farms." Therefore, his farm cultivates "Chinese produce that local American does not eat, and the consumers are mainly Chinese." Participant P3 said, "We came from Taiwan, and all things we knew were Taiwanese produce. Thus, we started our farm to produce Taiwanese produce." Some participants "do not like" (P7) and "are afraid of strangers" (P11) to visit their farms.

Language and communication barriers

Some participants considered their poor English a barrier to communicating with others and accessing information on resources and services. Participant P11 said, "I don't have any experience dealing with the government. I don't know English. Whatever I need, I tell my son. He helps out." NRCS programs were often brought up in the interviews. Participant P1 said, "NRCS does not proactively communicate the information on those programs

with me while local American farmers know it well." Some participants visited the governmental websites for more information but often experienced "language obstacles because that vocabulary is difficult to understand" (P4). Some participants complained that the information on those websites was incomplete; when they called for additional inquiries, "no one picked up the phone. There is no specially designed website that hosts all agriculture-related information" (P4).

Cultural difference

There are cultural differences between the Chinese immigrant farming community and American society. Most Chinese immigrant farms focus on agricultural products exclusively for Eastern Asian immigrant consumers rather than the local American consumers. Some Chinese immigrant farms do serve American consumers, but they must overcome some cultural barriers. Participant P6 gave a vivid example, "The taste of local American is different from ours. Chinese like red, and everything is red, but Americans don't like red. ... Yellow and light blue flowers were the best seller during Easter, and I thought Americans like yellow and light blue. Therefore, I prepared such color flowers on Mother's Day but couldn't sell them at all."

Distrust

The cultural difference can lead to mistrust. Participant P1 said, "Local Americans sometimes came to visit my store on my farm, but usually didn't buy anything. A local American visitor once told me that my tomato did not have tomato flavor, but my tomato seed were from my neighbor, an American farmer." Distrust extended to the government, with some participants feeling that they were treated differently by government organizations. Participant P1 said, "Most people who work at NRCS are white. White farmers always get funding when they apply, but I didn't get it when I first applied for it. I waited for two years to get it...local American farmers got more funds than I did." Some participants did not want to be "involved in politics because we are disappointed with the government...we just follow the rules to do our business. We are immigrants. We need to keep reminding ourselves about that. No matter what you do,

the government would see you differently. We work harder than others because we are the first-generation immigrants" (P6). Participant P6 cited an example of a harsh treatment from a local government: "I applied for a permit for my greenhouse. Although no issue was found during the inspection, the township refused to issue the permit for its operation. The township fined me [US]$2,000 a day after its opening. It took three years and numerous efforts and resources to win the lawsuit against the township. The case was finally settled by paying [US]$8,000 fee instead of the accumulated fine of [US]$2 million." Some participants simply believe that "the government does not bring benefits, but always tries to find your faults; therefore, we are not willing to deal with the government" (P7).

It should be noted that some young farmers have opposite opinions about government agencies. The second-generation immigrant farmer said, "It is quite smooth to deal with the government. They tell us what to do, and we do it" (P9). Participant P10, who has a Ph.D., said, "Agricultural extension helps us collaborate with other farms and introduces us to some government programs." Participant P12 said, "The state agencies liked my operation very much and were helping me expand my business."

Discussion, Implications, and Recommendation

Agriculture in U.S. suburban regions is experiencing a transformation. Large-scale industrial agriculture has been fading away in the suburbs, and pockets of small-scale farms that produce specialty products and are often run by immigrants have emerged to fill the niche and take advantage of proximity to consumers and markets. It is expected the trend will continue, since most suburban regions have adopted aggressive farmland preservation programs to retain it for agricultural operations (Hellerstein et al., 2002). However, new immigrant farmers face numerous obstacles for entering the farming business as a newcomer, which can be characterized as liability of newness. The findings from this study confirmed the existence of the liability of newness among these Chinese immigrant farmers. First, studies show that

immigrant farmers face many obstacles including inadequate English communication skills, insufficient social networks, and lack of technical knowledge and resources that often prevent immigrants from successfully operating farms (Asiedu et al., 2012; Jensen, 2006; Salaff et al., 2003; Sanders & Nee, 1996; Smithers & Sethuratnam, 2013). Our study finds that those obstacles are real among Chinese immigrant farmers and had significantly affected their access to services and resources. Second, this study also found that Chinese immigrant farmers primarily used informal channels to obtain financial resources to operate and expand their farming operations. The predominant use of informal channels for financial services often implies significant barriers to formal financial services (Banerjee & Duflo, 2007; Madestam, 2014; Tsai, 2004). Third, although the network of food supply chains in Chinatown, New York, is global, as described by Imbruce (2016), the operation of farms by Chinese immigrants was conducted locally and often in isolation, forming an enclave economy on the production side. Similar experiences of liability of newness were recorded among other immigrant farmers, such as Latinos (Gonzalez & Jeanetta, 2013; Minkoff-Zern & Sloat, 2017; Zabawa et al., 2007).

Public investment in food and agricultural research and various agricultural education and extension programs has successfully supported farm operations and spurred U.S. agricultural productivity growth (Pardey et al., 2013). These programs help improve farmer decision-making and raise productivity, contributing to agricultural development and prosperity (Anderson & Feder, 2004). Jin and Huffman (2016) estimated a real internal rate of return of 67% for public agricultural research with a productivity focus, and a rate of return of over 100% for narrowly defined agricultural and natural resource extension. Public agricultural education and extension are closely linked to a decentralized and state-based university research system with additional support from state and local government (Norton & Alwang, 2020). As the share of the agricultural economy in suburban states like New Jersey shrinks, so does the federal and state funding for these programs, resulting in a significant decline in agriculture education and

extension programs in the region. This further hurts the community of immigrant farmers as they have been already experiencing difficulties and barriers to access these services traditionally provided.

Despite isolation and many obstacles, the immigrant farmers are resilient in dealing with difficulties in their farm operations to overcome the "liability of newness." In many cases, their farming businesses are expanding and flourishing. However, to facilitate further growth in farms operated by immigrants, the agricultural education and extension programs in suburban regions need to adapt to the transformational changes in suburban agriculture to meet the new kind of demands (Brown, 1981; Calo, 2018; Knutson, 1986; van den Ban & Hawkins, 1996). First, as more immigrants, including Chinese and Latino, are engaged in farming, language barriers and cultural differences are limiting their abilities to access services and resources. Agricultural extension and governmental service agencies can adapt to such situations by providing multi-lingual supports in their programs. Second, immigrants generally have a limited understanding of agricultural and relevant regulatory policies. The governmental agencies can take a proactive approach to improve communication and reduce distrust with immigrant farmers. Third, local governments and community groups can play more active roles in organizing and/or hosting multi-cultural festivals to strengthen communication and exchange between immigrant farmers and their communities and to understand cultural differences. Fourth, agricultural extension services could develop a one-stop service platform that consolidates multiple services to help farmers to obtain services more effectively. Fifth, more innovative financial services can be created to better serve the financial needs of immigrant farmers to support their farm operations.

Limitations and Future Research
This is the first study to investigate the farming experiences of the Chinese immigrant farmers as principal operators in terms of their access to agricultural resources and services for overcoming the liability of newness and operating farms. This qualitative study has some inherent limitations. First, the experiences described here are limited to

Chinese immigrant farmers in the New York metropolitan area. Second, the number of participants is relatively small. Third, most of the participants are first-generation farmers, and the experiences of more long-term Chinese immigrant farmers in other regions such as California may be quite different. More in-depth research is needed to understand Chinese immigrant farmers' obstacles to accessing services and resources, such as the language barriers, cultural difference, distrust, and isolation described in this study. In-depth research is also needed to understand how their racial identity may help expand their farming operation, integrate with the broader, even the global agricultural and food system, and develop a market-oriented yet sustainable agricultural system. The growth of small-scale immigrant farmers in an industrial agricultural system also calls the conventional agricultural development theories into question. More research and theoretical development are also needed to understand the increasing presence of small-scale immigrant farmers and to facilitate their growth.

Acknowledgments

References

Abatecola, G., Cafferata, R., & Poggesi, S. (2012). Arthur Stinchcombe's "liability of newness": Contribution and impact of the construct. *Journal of Management History*, *18*(4), 402–418. https://doi.org/10.1108/17511341211258747

Agyeman, J., & Giacalone, S. (Eds.) (2020). *The immigrant-food nexus: Borders, labor, and identity in North America*. MIT Press. https://doi.org/10.7551/mitpress/11862.001.0001

Ainembabazi, J. H., & Mugisha, J. (2014). The role of farming experience on the adoption of agricultural technologies: Evidence from smallholder farmers in Uganda. *Journal of Development Studies, 50*(5), 666–679. https://doi.org/10.1080/00220388.2013.874556

Ainley, S. (2014). A phenomenological study of agritourism entrepreneurship on Ontario family farms. *Tourism Planning & Development*, *11*(3), 317–329. https://doi.org/10.1080/21568316.2014.890128

Aldrich, H. E., & Waldinger, R. (1990). Ethnicity and entrepreneurship. *Annual Review of Sociology*, *16*(1), 111–135. https://doi.org/10.1146/annurev.so.16.080190.000551

Anderson, J. R., & Feder, G. (2004). Agricultural extension: Good intentions and hard realities. *World Bank Research Observer*, *19*(1), 41–60. https://doi.org/10.1093/wbro/lkh013

Asiedu, E., Freeman, J. A., & Intifada, A. (2012). Access to credit by small businesses: How relevant are race, ethnicity, and gender? *American Economic Review*, *102*(3), 532–537. https://doi.org/10.1257/aer.102.3.532

Banerjee, A. V., & Duflo, E. (2007). The economic lives of the poor. *Journal of Economic Perspectives*, *21*(1), 141–168. https://doi.org/10.1257/jep.21.1.141

Brown, T. G. (1981). Changing delivery systems for agricultural extension: The extension teacher—changing roles and competencies. *American Journal of Agricultural Economics*, *63*(5), 859–862. https://doi.org/10.2307/1241258

Calo, A., (2018). How knowledge deficit interventions fail to resolve beginning farmer challenges. *Agriculture and Human Values*, *35*(2), 367–381. https://doi.org/10.1007/s10460-017-9832-6

Census of Agriculture 2017 Highlights. (2019a). *Asian Producers*. U.S. Department of Agriculture, National Agricultural Statistics Service. https://www.nass.usda.gov/Publications/Highlights/2019/2017Census_Asian_Producers.pdf

Census of Agriculture 2017 Highlights. (2019b). *Farm Producers*. U.S. Department of Agriculture, National Agricultural Statistics Service. https://www.nass.usda.gov/Publications/Highlights/2019/2017Census_Farm_Producers.pdf

Coe, A. (2009). *Chop suey: A cultural history of Chinese food in the United States*. Oxford University Press.

Conklin, T. A. (2007). Method or madness: Phenomenology as knowledge creator. *Journal of Management Inquiry*, *16*(3), 275–287. https://doi.org/10.1177/1056492607306023

Denzin, N. K. (1989). *Interpretive biography*. Sage. https://doi.org/10.4135/9781412984584

Dory, G., Qiu, Z., Qiu, C. M., Fu, M. R., & Ryan, C. (2017). A phenomenological understanding of residents' emotional distress of living in an environmental justice community. *International Journal of Qualitative Studies on Health and Well-being*, *12*(1), Art. 1269450, 1–10. https://doi.org/10.1080/17482631.2016.1269450

Fakowski, J., Ciaian, P., & Kancs, D. (2010). Access to credit, factor allocation and farm productivity: Evidence from the CEE transition economies. *Agricultural Finance Review*, *72*(1), 22–47. https://doi.org/10.1108/00021461211222114

Faysse, N., Sraïri, M. T., & Errahj, M. (2012). Local farmers' organisations: A space for peer-to-peer learning? The case of milk collection cooperatives in Morocco, *Journal of Agricultural Education and Extension*, *18*(3), 285–299. https://doi.org/10.1080/1389224X.2012.670053

Foster, A. D., & Rosenzweig M. R. (1995). Learning by doing and learning from others: Human capital and technical changes in agriculture. *Journal of Political Economy*, *103*(6),1176–1209. https://doi.org/10.1086/601447

Fu, M. R., & Rosedale, M. (2009). Breast cancer survivor's experience of lymphedema related symptoms. *Journal of Pain and Symptom Management*, *38*(6), P849–P859. https://doi.org/10.1016/j.jpainsymman.2009.04.030

Fu, M. R., Xu, B., Liu, Y., & Haber, J. (2008). "Making the best of it": Chinese women's experiences of adjusting to breast cancer diagnosis and treatment. *Journal of Advanced Nursing*, *63*(2), 155–165. https://doi.org/10.1111/j.1365-2648.2008.04647.x

Gonzalez, E., & Jeanetta, S. (2013). *Latino farmers and USDA agents talk about challenges to access and use of USDA programs* [Paper presentation]. Proceedings of the 11th Annual Conference, Latinos in the Heartland: at the Crossroads: ¿Incorporation or Marginalization? Cambio Center, University of Missouri, Columbia. https://mospace.umsystem.edu/xmlui/bitstream/handle/10355/48941/2013-GonzalezJeanetta.pdf?sequence=1

Grashuis, J., & Franken, J. (2020). Exit strategies of farmer co-operatives in the United States: A competing risks analysis. *Journal of Co-Operative Organization and Management*, *8*(2), Art. 100119. https://doi.org/10.1016/j.jcom.2020.100119

Hanson, J. (2001). A phenomenological case for the family farmer as an environmental steward. *Great Plains Research*, *11*(2), 347–360. https://www.jstor.org/stable/23777990

Hellerstein, D., Nickerson, C., Cooper, J., Feather, P., Gadsby, D., Mullarkey, D., Tegene, A., & Barnard, C. (2002). *Farmland protection: The role of public preferences for rural amenities* (Agricultural Economic Report No. 815). U.S. Department of Agriculture Economic Research Service. https://www.ers.usda.gov/webdocs/publications/41479/17324_aer815_1_.pdf?v=0

Hightower, L. S., & Brennan, M. A. (2013). *Local food systems, ethnic entrepreneurs, and social networks* [Paper presentation]. Agricultural and Applied Economics Association 2013 AAEA & CAES Joint Annual Meeting, Washington DC. https://econpapers.repec.org/paper/agsaea13/149696.htm

Horst, M., & Marion, A., (2019). Racial, ethnic and gender inequities in farmland ownership and farming in the U.S. *Agriculture and Human Values*, *36*(1), 1–16. https://doi.org/10.1007/s10460-018-9883-3

Husserl, E. (1962). *Ideas: General introduction to pure phenomenology* (W. R. B. Gibson Trans.). Macmillan.

Imbruce, V. (2016). *From farm to Canal Street: Chinatown's alternative food network in the global marketplace*. Cornell University Press. https://doi.org/10.7591/9781501701238

Jensen, L. (2006). *New immigrant settlements in rural America: Problems, prospects, and policies* [Report]. Carsey School of Public Policy, University of New Hampshire. https://doi.org/10.34051/p/2020.18

Jin, Y., & Huffman, W. E. (2016). Measuring public agricultural research and extension and estimating their impacts on agricultural productivity: New insights from U.S. evidence. *Agricultural Economics*, *47*(1), 15–31. https://doi.org/10.1111/agec.12206

Knutson, R. D. (1986). Restructuring agricultural economics extension to meet changing needs. *American Journal of Agricultural Economics*, *68*(5), 1297–1306. https://doi.org/10.2307/1241896

Leung, P. C. Y., & Ma, L. E. A. (1988). Chinese farming activities in the Sacramento-San Joaquin Delta: 1910–1941. *Amerasia Journal 14*(2*)*, 1–18. https://doi.org/10.17953/amer.14.2.p4672039852016j7

Li, L. (2013, Feb. 28). California's immigrant farmers squeezed by Silicon Valley success [Public radio program]. *The World*. https://www.pri.org/stories/2013-02-28/californias-immigrant-farmers-squeezed-silicon-valley-success

Madestam, A. (2014). Informal finance: A theory of moneylenders. *Journal of Development Economics*, *107*(1),157–174. https://doi.org/10.1016/j.jdeveco.2013.11.001

Marabesi, A. O., & Kelsey, K. D. (2019). A phenomenological inquiry into producers' experiences growing organic produce. *Journal of Extension*, *57*(5), Art. 6, 1–9. https://tigerprints.clemson.edu/joe/vol57/iss5/6

Minkoff-Zern, L.-A. (2018). Race, immigration and the agrarian question: Farmworkers becoming farmers in the United States. *The Journal of Peasant Studies*, *45(2)*, 389–408. https://doi.org/10.1080/03066150.2017.1293661

Minkoff-Zern, L.-A. (2019). *The new American farmer: Immigration, race, and the struggle for sustainability*. MIT Press. https://doi.org/10.7551/mitpress/11263.001.0001

Minkoff-Zern, L.-A., & Sloat, S. (2017). A new era of civil rights? Latino immigrant farmers and exclusion at the United States Department of Agriculture. *Agriculture and Human Values*, *34*(3), 631–643. https://doi.org/10.1007/s10460-016-9756-6

Minkoff-Zern, L.-A., Welsh, R., & Ludden, M. T. (2020). Immigrant farmers, sustainable practices: Growing ecological and racial diversity in alternative agrifood spaces. *Agroecology and Sustainable Food Systems 44*(7), 947–972. https://doi.org/10.1080/21683565.2019.1666076

Mulvaney, C., & Kelsey, K. (2020). A phenomenological inquiry to understand Ugandan farmers' perceived barriers to fertilizer use. *Advancements in Agricultural Development*, *1*(1), 63–74. https://doi.org/10.37433/aad.v1i1.7

Nickerson, C., Morehart, M., Kuethe, T., Beckman, J., Ifft, J., & Williams R. (2012). *Trends in U.S. farmland values and ownership* (Economic Information Bulletin [EIB] No. 92). U.S. Department of Agriculture, Economic Research Service. https://www.ers.usda.gov/webdocs/publications/44656/16748_eib92_2_.pdf

Norton, G., & Alwang, J. (2020). Changes in agricultural extension and implications for farmer adoption of new practices. *Applied Economic Perspectives and Policy*, *42*(1), 8–20. https://doi.org/10.1002/aepp.13008

Pardey, P. G., Alston, J. M., & Chan-Kang, C. (2013). Public agricultural R & D over the past half century: An emerging new world order. *Agricultural Economics*, *44*(s1), 103–113. https://doi.org/10.1111/agec.12055

Ploeg, J. D. van der. (2018). *The new peasantries: Rural development in times of globalization* (2nd ed.). Routledge.

Reynolds, B. J. (2002). *Black farmers in America, 1865-2000: The pursuit of independent farming and the role of cooperatives* (RBS Research report No. 194). U.S. Department of Agriculture, Rural Business-Cooperative Service. https://www.rd.usda.gov/files/RR194.pdf

Salaff, J. W., Greve, A., Siu-Lun, W., & Ping, L. X. (2003). Ethnic entrepreneurship, social networks, and the enclave. In B. S. A. Yeoh, M. W. Charney, & T. C. Kiong (Eds.), *Approaching transnationalisms: Studies on transnational societies, multicultural contacts, and imaginings of home* (pp. 61–82). Kluwer Academic Publishers. https://doi.org/10.1007/978-1-4419-9220-8_4

Sanders, J. M., & Nee, V. (1996). Immigrant self-employment: The family as social capital and the value of human capital. *American Sociological Review*, *61*(2), 231–249. https://doi.org/10.2307/2096333

Seda, C. H. (2020). Growing food, growing a movement: How structural racism affects immigrant farmers. *Journal of Agriculture, Food Systems, and Community Development*, *9*(4), 347–349. https://doi.org/10.5304/jafscd.2020.094.038

Smithers, J., & Sethuratnam, S. (2013). New farms and farmers in ethnocultural communities: Aspirations, barriers and needs. *Journal of Rural and Community Development*, *8*(3), 98–112. https://journals.brandonu.ca/jrcd/article/download/1030/247/2935

Sokolowski, R. (2000). *Introduction to Phenomenology*. Cambridge University Press.

Stinchcombe, A. L. (1965). Social structure and organizations. In J. March (Ed.), *Handbook of organizations* (pp. 142–193). Rand McNally.

Tsai, K. S. (2004). Imperfect substitutes: The local political economy of informal finance and microfinance in rural China and India. *World Development*, *32*(9), 1487–1507. https://doi.org/10.1016/j.worlddev.2004.06.001

Tsu, C. M. (2013). *Garden of the world: Asian immigrants and the making of agriculture in California's Santa Clara Valley*. Oxford University Press. https://doi.org/10.1093/acprof:oso/9780199734771.001.0001

van den Ban, A. W., & Hawkins, H. S. (1996). *Agricultural Extension* (2nd ed.). Blackwell.

Zabawa, R., Hargrove, T., Baharanyi, N., & Levins, R. A., (2007). *Shut out: How US farm programs fail minority farmers*. Oxfam America. https://s3.amazonaws.com/oxfam-us/www/static/media/files/shut-out.pdf

Zhang, W. (2016). Chinese in Florida: History, struggles, and contributions to the sunshine state. In R. A. Mohl, J. E. Van Sant, & C. Saeki (Eds.), *Far East, down South: Asians in the American South* (pp. 108–131). University of Alabama Press.

Pathways for advancing good work in food systems:
Reflecting on the international Good Work for Good Food Forum

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Abstract
The crucial roles that workers, especially seasonal
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The coronavirus pandemic resulted in food work-
ers being recognized as critical or essential workers
in many countries. In 2021, this coincided with the
UN International Year of Fruits and Vegetables
(IYFV), highlighting the importance of horticul-
tural crops to healthy lives globally. Yet, workers'
quality of life in this most labor-intensive form of
food production is often disregarded, or in the case
of the UN IYFV, misconstrued. The agriculture-

migration nexus—on which food systems depend—remains recognized as a challenge, yet there is limited debate about how it could be ameliorated and a lack of articulation of desirable alternatives. While alternative food and peasant movements propose food system transformation and alternative labor futures based on *agroecology*, labor lawyers and other advocates propose *regulation and formalization* of workplace regimes to ensure fair working conditions. Most recently, a third possibility has emerged from agri-tech innovators: a *techno-centric* future with far fewer agricultural workers. These three archetypes of agricultural labor futures (agroecological, formally regulated, and techno-centric) have the potential to leave food scholars and activists without a unified, coherent vision to advance. Addressing this gap, this paper reports and builds on insights harvested from the international Good Work for Good Food Forum, organized by the authors with the aim of shaping consensus on positive visions for work in food systems. About 40 scholar-activists across three continents discussed the current challenges facing food workers and crafted a collective vision for good food work. This vision is documented in the form of nine principles supported by a framework of seven enabling pathways. We conclude by emphasizing the need for a people-centered incorporation of technology and a re-valuation of food workers' contributions to global food systems. We offer the vision as a collective platform for action to advocate for and organize with workers in food systems.

Keywords
Labor, Food Workers, Good Food, Good Work, Decent Work, Migrant Workers, Agri-tech, Food Justice, Horticulture

Introduction
For those concerned with the nature and justice of food work, the year 2021 presented a plenitude of cautionary tales for reflection. The ongoing COVID-19 pandemic brought public attention to the vital role of food producers and others who work in the supply chain to keep food available and moving. Recognition of the essential nature of food workers brought new public and political

appreciation of their value to society, in stark contrast to how hidden food work typically remains. Coronavirus outbreaks at food production and processing facilities (Douglas, 2020) highlight the extent to which food workers have been vulnerable to the virus and its impacts (Klassen & Murphy, 2020). Conditions at many farms and food processing facilities make it difficult to control such risks, and workers' frequently precarious, unfree or undocumented status makes it difficult for them to speak up about their concerns (Wozniacka, 2020). In some European countries, the domestic population responded to calls to work in the fields, creating an unprecedented surge in interest in seasonal horticultural work (Wax, 2020). Ongoing and overlapping crises caused by war, conflict, and climate change have further underscored the vulnerability of global agri-food supply chains (Clapp, 2022) and the essential roles that workers play in keeping them functioning. Could this be a moment of change—an opportunity to seize on new awareness of what (and who) it takes to produce, process, transport, and make good food available to eaters?

The year 2021 was also declared the International Year of Fruits and Vegetables (IYFV) by the United Nations (UN) General Assembly. Led by the Food and Agriculture Organization of the United Nations (FAO), the aim of this initiative was to "raise awareness on the important role of fruits and vegetables in human nutrition, food security and health and as well in achieving UN Sustainable Development Goals" (FAO, 2021). Workers crucial to these horticultural supply chains were strangely absent from this celebration. Where the people behind the produce are acknowledged —including in many photos of them smiling—it is the positive impacts that are highlighted: "Cultivating fruits and vegetables can contribute to a better quality of life for family farmers and their communities" (FAO, 2021, *Key messages: Growing prosperity*). The "can" in that sentence is doing some heavy lifting, given what is known about the work conditions that are characteristic of horticultural work globally. Far from the decent work agenda envisioned by the International Labour Organization (ILO) and laid out in the UN Sustainable Development goals, workers involved in fruit and vegetable production are particularly vulnerable to exploita-

tion, unsafe work conditions, and terms representing modern slavery (Gertel & Sippel, 2017; Gray, 2014; Holmes, 2013; Howard & Forin, 2019). The FAO's expectation is that such problems be resolved through due diligence by businesses (FAO, 2020, pp. 43–44), but the long history and extent of poor work in the fresh produce industry suggests that this approach is woefully insufficient.

As one of the most labor-intensive modes of food production, horticulture has often been where pressures on work and workers emerge, but patterns of disempowerment stretch across food sectors. Academics and scholar-activists have explored the injustices faced by food workers from many perspectives, backgrounds, and countries. They have shown that even producers meeting ecological standards do not necessarily provide better working conditions (Dumont & Baret, 2017; Harrison & Getz, 2015; Soper, 2019; Weiler et al., 2016). Many minority world countries struggle to balance reliance on migrant food workers with a desire to limit immigration (Rye & Scott, 2018). Labor-related inequities disproportionately affect people of color (Freshour, 2017; Liu & Apollon, 2011; Sachs et al., 2014; Weiler, 2022), and both the legacies and contemporary forces of colonialism and racism limit access to becoming a food producer (Levkoe & Offeh-Gyimah, 2020). While technological solutions to labor shortages have gained further support in light of the pandemic, they are far from a panacea (Reisman, 2021) and risk exacerbating injustices within food systems, for example, as increased automation of tasks perceived to be highly skilled may result in more farmers relying on racialized migrant workers (Rotz et al., 2019). Current scientific paradigms upon which much of industrial agriculture depends create a divide between those who "know" agriculture and those who "do" agriculture (Coolsaet, 2016). Despite systemic inequities and dis-empowerment, food workers find ways of taking action and asserting control, through mutual aid, collective action, and consumer campaigns (Gottlieb & Joshi, 2010; Minkoff-Zern, 2014; Sbicca, 2017).

While the contemporary challenges of food production work are well documented and articulated, this can result in a sense of intractable problems, lacking identified pathways forward toward

more just futures. In this context, and at a moment ripe with opportunities for change, we the authors convened the Good Work for Good Food Forum (hereafter the Forum) in May 2021. As organizers, we were brought together by our shared interests and expertise in jobs, work, labor, and training in food production; early discussions revealed a common appetite for fostering international exchange and embracing diverse perspectives. Based on these shared interests and goals, the authors conceived and planned the Forum. Our aim for this was to go beyond detailing what is wrong with work in food systems and begin shaping a collective vision for what good food work can and should be. By convening discussion among this group of international experts on the topic, we aspired to build consensus on this and pathways toward it.

Building on the insights that emerged from the Forum, this article summarizes current challenges to good food work as highlighted by its participants, describing three archetypes for labor futures. It outlines a collective vision for good food work that goes beyond these archetypes, including pathways and priority actions to advance the vision. The next section provides more background on the Forum itself, followed by a summary of current challenges to good food work, drawing from the presenters' contributions and work accordingly. The description of the archetypes and vision that follow are the result of the author's analysis of insights and discussion from the Forum, and thus represent synthesis compiled by the authors. While the focus of the authors' and many Forum participants' research is labor in food production, we intentionally frame our vision and recommendations in terms of food work more broadly, as the structural inequities and barriers to improvements impact workers across the food chain.

Background: The Good Work for Good Food Forum

The Good Work for Good Food Forum, a one-day online gathering for researchers and scholar-activists to explore together what good food work is and can be, took place in May 2021. In light of the UN IYFV, we chose to highlight work centered on fruits and vegetables, while recognizing connec-

tions across the food system and common struggles and structural inequities facing all food workers. As the organizers, we initially defined good food as healthy, culturally appropriate, accessible for all, and produced in ways that are ecologically sustainable and socially just. We also proposed a working definition of "good food work" to be expanded and refined through the Forum: decent jobs producing, processing, and distributing food, which are fairly rewarded and personally rewarding, with jobs and training accessible to all, in safety and with dignity.

Registration was open, with participants invited through our professional networks and based on our knowledge of current scholarship exploring labor, work, and jobs in the food system. The program was designed to foster interactive discussions toward shared priorities for future action, and to establish global connections. Four speakers were invited to offer provocations on the topic drawing on their expertise and country contexts: Dr. Lucila Granada, Prof. Julie Guthman, Dr. Joanna Howe and Dr. Laura-Anne Minkoff-Zern. Granada is the chief executive of the Focus on Labour Exploitation (FLEX), a UK-based research and policy organization, and has extensive experience with feminist and labor organizations in Latin America. Guthman is a geographer, professor of social sciences at the University of California, Santa Cruz, and an award-winning scholar on agri-food capitalism, alternative food sytems, labor, and agricultural technologies. Howe is an associate professor at the Adelaide School of Law and a leading expert on the legal regulation of temporary labor migration. Minkoff-Zern is an associate professor of food studies at Syracuse University whose research explores the interactions between food and racial justice, labor movements, and transnational environmental and agricultural policy. Adminstrative and facilitation assistance for the Forum was provided by Cardiff University, supported by funding from a Sêr Cymru II Research Fellowship held by one of the organizers.

On the day of the Forum, over 40 participants from North America, Europe, and Australia joined in, with the make-up of the live audience changing as the working day shifted around global time zones. Recognizing that much is already known about "bad food work," we sought to develop a collective framework for understanding the barriers to and constraints on good food work prior to the Forum. Participants were invited at event registration to articulate what they see as the biggest challenge in relation to good food work. The organizers analyzed 61 responses[1] to generate an overview of the key issues. A synthesis of these responses—a list of six key challenges and associated needs—was shared in advance with Forum participants and then used as a basis for discussions. Groups were guided through a discussion of what good food work is and what needs to change in relation to current challenges, before prioritizing actions required across different domains of action (e.g., government or civil society). The Forum ended with an open space for all to reflect on priorities and aspirations. Recordings of the presentations and discussions were shared with all who expressed interest in attending. All who registered remain able to access the online notes of discussions created by participants, organizers, and the facilitation team.

It is important to note that although the Forum was open to all, its reach was limited by the organizers' networks and resources, resulting in participation skewed to the UK and North America. Although some participants brought insight from work in global majority countries, representation from these countries was limited. This was also partially due to a lack of capacity for quality translation, meaning that discussions were limited to English. Furthermore, in planning the Forum we considered whether and how to actively involve food workers, but felt our chosen format was not best suited to seeking their direct participation and would not offer a sufficiently rewarding experience to justify asking for their time. Instead, we sought to involve scholar-activists and organizations who work alongside workers and worker-led movements to reflect their interests in discussions. We recognize this as inadequate to the task of hearing workers' voices, and suggest attention to how researchers can meaningfully and equitably

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[1] Not all of the 61 who submitted comments were able to attend the workshop synchronously.

support worker participation in scholar activism as an area for future action and continued attention.

Following the Forum, the organizers worked to digest and reflect on the discussions. We have sought to summarize the consensus that developed and highlight key issues that emerged. While we draw on contributions made during the Forum, including the speakers' presentations, it remains our perspective on them. A draft of the vision for good food work was shared with speakers and participants for comment and input. This culminated in an open letter addressed to the FAO and other UN agencies connected with food work and workers that called on them to promote a vision for good food work and action toward food systems which better enable it (Good Work for Good Food Forum, 2021). This was signed by Forum participants, then opened to wider support, resulting in more than 100 signatories. Before outlining the content of the vision and enabling pathways for good food work, we outline why it is necessary to address current challenges and inspire coordinated collective action. The following sections share key insights from the Forum speakers and discussions.

Why Food Work Isn't Good: Summary of Current Challenges

Without wanting to rehearse challenges well known to students of agri-food systems, it is important to have a clear sense of what prevents many food workers from having safe, dignified and rewarding work to identify where change is needed most. In this section we focus on current barriers to good food work according to those involved in the Forum, reflecting an assessment of the challenges grounded in their collective expertise. As is apparent in Table 1, barriers to good food work are seen to be deeply rooted and extensive, arising from food systems' neoliberal capitalist imperatives and the legacies of their colonial history. These are knotty problems, often not visible to or understood by consumers, and hence there is a lack of pressure on retailers to make changes in their supply chains. At the same time, those among the

most harmed—food workers—are effectively prevented from challenging their conditions because they often have precarious jobs and immigration statuses.

Perspectives from opposite sides of the globe revealed how seasonal workers in horticulture are in particularly vulnerable positions; they are failed by current regulatory regimes. Recent research by FLEX working with the Fife Migrants Forum (2021) shared by Dr. Granada focused on the UK Seasonal Workers Pilot, a temporary labor migration program intended to address labor shortages in agriculture. FLEX's investigation directly engaged with seasonal workers in Scotland for first-hand insights and to identify risks of human trafficking by applying the ILO's indicators of forced labor. They found that many recruits take on debt to travel to work in the UK, and the threat of withdrawal of work and subsequent lost income effectively coerces workers into accepting unsafe and unfair conditions. Although technically free to leave an employer, in practice worker requests for transfers are often not delivered. This and unresolved complaints about living conditions show how seasonal workers lack influence, a situation Dr. Granada highlighted to be reinforced by lack of inspection and rigorous oversight of the scheme.

The UK's Seasonal Workers Pilot is reminiscent of programs in North America, Australia, and Europe that similarly disempower and devalue migrant workers, resulting in dangerous conditions (Gertel & Sippel, 2017; Mešić & Wikström, 2021; Weiler et al., 2020). The work of Dr. Howe draws attention to the inadequate enforcement of labor regulations in Australia, where there are similar efforts to meet labor needs through managed migration schemes (Howe et al., 2020). In her presentation at the Forum, she called Australia's seasonal worker program the "front doors" of labor migration into horticulture. However, in many cases there are also semi-legal "side doors," and illegal "back doors," through which employers employ undocumented workers who lack labor law protections while risking the punitive force of migration law.[2] A primary role of labor law is to

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[2] Dr. Howe also applies the front, back side and trap door metaphor to migration pathways for care workers in Australia and New Zealand (Howe et al., 2019)

Table 1. Barriers and Pathways to Good Food Work in the Broader Food System

Barriers to good food work	Pathways to enable good food work	Key pathway for change
1. The capitalist neoliberal organization of the food system • Food system under pinned by capitalist inequities, including ethno-racial and gender hierarchies • Focus on producing commodified food • Alternatives outside capitalism struggle to thrive • Access to land and resources to produce food are confined to those with capital	• Decolonized labor relations • Collective organization of workers • Thriving grassroots movements for agroecology and human rights	Challenge structural forces, especially capitalism and racism
2. Fractured movements, groups, and constituencies • Disconnections between food, labor, and environmental movements, and from the fight for racial justice • Uncoordinated good food initiatives • Nonwaged food work (e.g., peasant and reproductive labor) is overlooked	• Unions that are relevant to the diverse social and cultural realities of people's lives • Alliances (but not uniformity) beyond the food system and food movements • Movements that challenge the focus on waged work; inclusion of reproductive work • Labor struggles connected to racial justice struggles	Build alliances and solidarity
3. Food workers' positions as precarious and devalued • Food work (including domestic labor) perceived as unskilled and low value • Workers lack recognition and voice in the system that creates their conditions • Lack of collectivization increases workers' vulnerability to exploitation	• Food work is viewed as life-giving, knowledge-intensive, and highly skilled, and as including all activities that reproduce life • Workers are centered in civic life	Elevate and empower food workers
4. Indifference of the general consumer • Education and knowledge about food justice and food labor are limited and poorly understood • Food systems lack transparency, so eaters cannot hold industry to account	• Eaters act on and care about the injustices faced by food workers • The public recognize food workers as central for human flourishing • Consumers are aware of food production conditions and their roots in a drive for efficiency • Multiple approaches to education about food systems and labor for all life stages	Educate and galvanize the public around worker demands
5. Complex nature of regulations, protections, and standards in globalized food systems • Independent labor inspectorates lack power and separation from immigration systems • International labor standards are inadequate and weakly enforced • Migration systems drive labor exploitation and undermine worker protections	• All workers protected by citizenship or residency status • International standards and conventions set high standards for food work, backed by national and regional regulations • Employers comply with local regulations and laws because enforcement is strict • The UN Declaration on the Rights of Peasants is upheld	Improve governance, law, policy, and enforcement for worker rights

6. Farmers/employers squeezed by high costs and low prices • International markets drive a race to the bottom in worker conditions and rewards • Power and profit are overly concentrated with retailers, with less returned to producers • Social and ecological costs are displaced to peripheral regions or marginalized groups	• Businesses of all sizes enabled to invest in good working conditions • Public investment in just and sustainable food production along rights-based frameworks • New routes to market supported by policy and development	Build supply chains to enable possibilities for good food work
7. Complexity and interconnectedness of food security and labor injustice issues • Consumption of "good food" is too often inaccessible to those with low incomes • Solutions struggle to make systemic impact due to the complexity of food systems and tensions between various injustices • Wellbeing of workers, nonhumans, and consumers are traded against each other	• All eaters are empowered to make choices based on their needs, preferences, and place • Enhanced dialogue between food system actors • Systems that reflect the interconnectedness of all life (including animals, plants, workers, and everyone else) and between human, animal, and planetary wellbeing • True cost accounting that captures human and nonhuman dimensions	Take a systems approach to address challenges

offer safeguards for workers who are in unequal relationships with their employers, whereas migration law fundamentally restricts individuals' membership to states and therefore their labor markets. In practice, the punitive power of migration law tends to override the protective force of labor law, such that migrant workers receive more harm than protection from state regulatory powers (Costello & Freedland, 2014). This imbalance needs addressing if the law is to protect migrant workers and their role in food systems. A labor market with multiple doors of entry creates segmentation and a hierarchy in which some workers have more rights, better conditions, and earning capacity (Howe et al., 2020). These underlying conditions have strong parallels elsewhere in the Global North and trace back to the supermarket shelf. Farmers who use the most regulated paths for employment (which provide migrant workers more entitlements) face higher labor costs, thus incentivizing informal hiring practices. Retail prices exert downward pressure on farmers, encouraging them to pay workers as little as possible (Rye & Scott, 2018).

Current regulatory systems are failing seasonal workers, and protective regulations are not sufficiently enforced where they do exist. There is a need for increased independent controls such as workplace inspections and consultation with workers. Over and

above regulation, how and whether workers are racialized as nonwhite also affects their treatment. In Australia, workers racialized as white are treated better than those racialized as Asian, across different avenues into the labor market (Underhill & Rimmer, 2016). Workers feel the harsh impacts of this racialization in their bodies because their lives are treated as subservient to those of the plants or animals they tend. For example, in U.S. factory farming, workers' bodies are contoured and remade according to the needs of intensive production systems (Blanchette, 2020). The drive for efficiency leads to incredibly fast, time-pressured work that significantly impacts workers' bodies—bodies that are less likely to be white (Guthman, 2019; Holmes, 2013).

Portraits of marginalized food workers who are segmented by migration law, unprotected by inadequate regulatory controls, and devalued in the market-driven race to the bottom were familiar to Forum participants. Familiar too is the difficulty of knowing where to begin picking apart the tangle of threads which pull power away from workers. It is this complexity to which Dr. Minkoff-Zern turned our attention, with her urging to think about labor justice from a food systems perspective. She began with the questions: Is it possible to build a food system that is devoid of human exploitation and

suffering? What would it take to do so? She cautioned that academics and researchers seeking answers have tended to focus on specific parts of the food system, especially on agricultural workers. But labor injustices abound across the food chain, and she reminded us that "struggles of farmworkers in the field are inextricable from those of servers and bussers being paid tipped wages, and Uber Eats drivers working in the gig economy." Minkoff-Zern's contribution, drawing on her collaboration with Theresa Mares (Minkoff-Zern & Mares, in press), underscored how working *with* the connections between all workers in the food system will combat the segmentation of workers, and enable collective struggle against common forces hurting workers.

This food systems approach to labor is apparent in social justice and worker organizations' applied research, such as that of the Food Chain Workers Alliance and Race Forward (Food Chain Workers Alliance, 2012; Liu & Apollon, 2011). Some academic work also follows a food systems analysis of labor (Besky & Brown, 2015; Levkoe et al., 2016; Lo & Jacobson, 2011, 2011; Minkoff-Zern, 2017; Sbicca, 2015; Wald, 2011). Minkoff-Zern and Mares's vision of scholar-activism resonated with Forum participants for its inclusion of food-based work that takes place both inside and outside the home (i.e., reproductive labor). It also seeks to counter current fractures between movements and actors, with work to support, reflect, and enable coalitions between food workers. Minkoff-Zern also highlighted the need for such coalition-building beyond the food system, such as for the labor movement to address disparate food sectors and for food movements to better address the demands and concerns of the labor movement.

So far we have shown how Forum speakers highlighted that, while possibilities for different futures are apparent in the margins, good food work remains largely unrealized. At the root of the barriers explored during the Forum are unjust power dynamics, which tend to work against workers' interests. There is growing recognition of the need to address power imbalances within food systems, as highlighted by the UN Special Rapporteur on the Right to Food Michael Fakhri and others concerned with corporate domination of the

recent UN Food System Summit (Clapp, 2021; Clapp et al., 2021; Fakhri, 2021). As Clapp notes, a small number of large companies bear huge influence on how food is produced and conditions for food system workers, with profit prioritized over livelihoods (2021). And if corporations continue to consolidate their position, they gain greater bargaining power, further driving down wages and labor conditions (Autor et al., 2017; Khan & Vaheesan, 2017; LeBaron, 2020). So, what is the alternative, and what can we do to help achieve it? In the next section, we lay further groundwork for the vision for good food work by turning to why such visions are important.

Three Archetypes of Food Labor Futures
Professor Guthman's contributions to the Forum galvanized our efforts to coalesce areound a vision of good food work, by highlighting visions that are gaining prominence amongst decision-makers and those who hold power in agri-food systems. She urged paying attention to new technology-focused actors in food systems, including data scientists and app builders, alongside those working on food technology. Their techno-centric vision often entails automated production environments—such as indoor or vertical growing—where many agricultural workers are replaced with drones, robots, artificial intelligence, and "professionalized" labor, such as cell biologists, IT specialists, food scientists, and nutritionists. Under current governance and regulatory regimes, this would likely result in a highly capitalized, industrialized, and biologically simplified agricultural production model (e.g., input- and energy-intensive monocultures).

The automation of food production through technology such as robots, AI, and indoor growing was advocated by many industry actors as a solution to problems revealed or exacerbated by the pandemic (Reisman, 2021). But as critical agri-food scholars have highlighted, tech-centric trajectories are far from politically neutral, and may further entrench food system inequalities, so they require careful consideration (Reisman, 2021; Rose & Chilvers, 2018; Rotz et al., 2019). Techno-centric labor futures would rely heavily upon industries to produce technological equipment (Lakhiar et al., 2018), so they might simply displace dirty and

dangerous jobs from food supply chains to other workplaces (Reisman, 2021). At present, innovations toward data-driven digital farming are usually corporate-led, so they tend to serve corporate interests (Birner et al., 2021; Carolan, 2020; Duncan et al., 2022) and rarely seek to advance ecologically diversified or socially just alternatives to industrialized food production (Wittman et al., 2020), risking potentially adverse lock-ins with undesirable consequences (Clapp, 2021). Many of these agri-tech solutions remain inaccessible to global smallholder farming populations or farm-workers (Mehrabi et al., 2021; Rotz et al., 2019). Also, the automation required to replace the most numerous agricultural jobs (such as harvesting) are thought to be at least a decade away, with no guarantee they will become widely accessible or practical. The risks that agri-tech innovations exacerbate inequities and unsustainable food systems should be central in discussions of their potential, with social and political dimensions considered alongside technical potential (Rose & Chilvers, 2018). Crucially, a rapid transition to more technified and mechanized agriculture is not likely to serve the workers who currently depend on these jobs, yet their interests are rarely represented in agri-tech forums (Reisman, 2021).

As Guthman outlined, this techno-centric trajectory is garnering support in policy and commercial circles, and it presents new questions regarding what constitutes good food work. Why push for more dignified, better protected food jobs, when there is a very real prospect of those jobs disappearing? And how can advocates call for the protection of food jobs from automation without defending the poor nature of current working conditions? At the heart of Guthman's provocation was the question of whether the food movement has a vision clear and compelling enough to counter that of the techno-centric labor future. In the absence of a unified and comprehensive vision for food labor that is just, sustainable, and people-centered, techno-centric visions are likely to continue to gain influence, and might preclude alternatives.

Through discussions at the Forum and subsequent reflection and analysis by the authors, a sketch emerged of two visions typically at play in minority world food movements that act as alternatives to the techno-centric vision. First is what we might call an "agroecological" approach to food work espoused by alternative food movements and cooperatives, such as those advancing food sovereignty, agroecology, and local food systems. Proposals in this archetype are often grounded in agrarian values of small-scale, family, or subsistence farming and land-based work, and are often detached from status-quo and capitalist food systems. Actors and movements such as La Via Campesina strive for autonomy from a system of "race to the bottom" business approaches and microcontrolled workplace environments. Instead, they aspire to building self-sufficiency, localizing food systems, learning, preserving bio-cultural heritage, and enacting new modes of equality in both the productive and reproductive spheres of living. These systems are often labor-intensive due to crop diversity, less mechanization, and using manual practices in lieu of inputs to control pests (Finley et al., 2018; Jansen, 2000; Montt & Luu, 2019). Given the increased labor requirements of agroecological farming systems, scholars have argued for training an ecologically skilled workforce to steward them (Carlisle et al., 2019) and that work opportunities on these farms have the potential to advance more just working conditions due to the variety of tasks and opportunities for learning (Timmermann & Félix, 2015). However, as research on agro-ecological production has shown, this vision can perpetuate its own forms of exploitation (Ekers et al., 2016; Ekers & Levkoe, 2015; Galt, 2013; Pilgeram, 2011; Weiler, 2022; Weiler et al., 2016), and there remain many unanswered questions about to what extent they offer a more fair alternative in terms of labor.

This "agroecological" vision for food work does not usually involve contracts, fixed working hours or employment benefits such as pensions, hence the significance of the second archetype, what we might call the "formally regulated" workplace. Formal workplace procedures, entitlements, and employment benefits like these are considered important aspects of job quality (Kalleberg, 2013). Though rarely applied to agricultural work—due in part to the pervasive logic of agricultural and migrant worker exceptionalism (Getz et al., 2008;

Weiler & Encalada Grez, 2022)—these characteristics of good-quality jobs are another component of a vision for food work, with strong linkages to labor law, unionization, and industrialization. This vision is a reality for some food workers, such as those who have been able to leverage collective bargaining power through unions like the United Food and Commercial Workers Union. However, there remain serious barriers to such improvements for significant groups of food workers, especially seasonal migrant workers.

This second vision of the "formally regulated" labor future is of waged workers working for good employers within the status-quo food system, under strong regulatory protection. But as Guthman suggested at the Forum, "both [alternative visions] are inadequate and are also flip sides of the same thing, which leaves the core of the food system untouched. The task of imagination is to think beyond both." Productive re-imagining of better labor futures, she suggested, must seek to go beyond these archetypes and consider how to challenge the status quo and repair the harms it has done.

These contrasting visions for the future of food work (techno-centric, agroecological, and formally regulated) sit among many possibilities, each with shortcomings and advantages. We recognize, for example, the shortcomings of an overly optimistic view of labor in the alternative food sector, which is not exempt from the inequities of food work (Harrison & Getz, 2015; Weiler et al., 2016). Due to lack of state provision of specialist training and the challenges agroecological growers face, unpaid or low-paid traineeships are currently a key developmental pathway, and this risks being exclusive and exploiting those who volunteer their time (Pitt, 2022). Public investment in quality training pathways would help remedy this as an interim solution until these production systems are economically robust enough to generate living incomes. We also recognize the benefits of formal workplace procedures and benefits, but at the same time, we see both that views need to be complicated by the messy reality of food work, including the prevalence of subcontracting, differential arrangements for workers in a shared

workplace, and the hidden nonwaged work happening in homes and elsewhere.

Neither participants nor organizers espouse the view that technology is inherently bad; rather, we amplify the concern that workers' interests must feature more prominently in assessments of innovation, and calls that agri-tech transformations should not forclose diverse ways of doing and owning food production. As well articulated by Matt Huber, "What parts of these automated technologies can be repurposed to create agroecological growing systems rather than monoculture-plantation profit machines?" (Huber, 2020, "Socialise the Food System," para. 10). The Forum's vision, therefore, includes consideration of how future food systems can harness technologies that enable worker wellbeing and more sustainable and humane food production models.

Outcomes: A Vision and Pathways for Good Food Work

Our objective for the Good Work for Good Food Forum was to craft a shared vision for good food work. To develop a comprehensive and nuanced vision, we had to negotiate tradeoffs between what we outline in the previous section as the three competing archetypes for labor in food systems. The discussions summarized in the previous sections highlighted that a vision for good food work may be even more urgently needed than we realized when conceiving the Forum.

Our proposed vision for good food work in just and sustainable food systems (Figure 1) rejects the view that the best way to deal with the indignities and inequities of food work is to eradicate it. Instead, we advocate a more critical examination of the potential of technology in creating the conditions for good food work. We seek to go beyond what existing employment standards and regulatory controls should achieve to propose a comprehensive vision that lays out what food workers deserve, now and in the future. This vision was crafted by the authors based on insights that emerged from the Forum and shared back to all Forum attendees for feedback and approval. As such, we consider it a collective vision endorsed by Forum participants. It is important to note that the workers currently laboring in food systems have immediate needs

Figure 1. A Collective Vision for Good Food Work

Our vision is to expand and build upon the existing legal standards and best practice in the sector with aspirational principles for how work in food systems can protect, reward, and celebrate those making their livelihoods from this important sector. The principles we propose emerged from the Good Work for Good Food Forum, and in response to concerns regarding visions for food systems that often eclipse, rather than prioritize, the rights of food workers.

Good food work across all sectors and all scales should:

1. Be recognized as valuable and skilled;
2. Be fairly paid, often well-paid, and personally fulfilling;
3. Be available to everyone regardless of personal identity or immigration status;
4. Be safe and be carried out in a healthy and supportive environment;
5. Use technology where it assists workers;
6. Include opportunities for skills development and career progression;
7. Provide workers with access to social security support;
8. Have conditions and terms determined together with workers; and
9. Enable workers' freedom of association and engagement in collective action.

These nine principles should be underpinned by appropriate international law, enforced by nation states, respected by private actors, and open to scrutiny by trade unions and civil society groups. Furthermore, it is important that actors whose role it is to protect and enforce labor standards, such as labor inspectorates, be independent of migration enforcement agencies, who may undermine their protective roles and decrease workers' trust in them. In order for labor standards to be enforced, national labor inspectorates should be given sufficient resources to undertake this work, in line with ILO targets.[a]

[a] These targets are 1 per 10,000 workers in industrial market economies; 1 per 15,000 in industrializing economies; 1 per 20,000 in transition economies; and 1 per 40,000 in less developed countries (ILO, 2006, p. 4).

that should be met as a matter of urgency—for them, better work conditions are not a distant dream imagined for some vague future. We also recognize our privileged position as academics who can think and write about visions for better worlds of work without having to suffer the injustices and harms of living current labor regimes.

Having identified fundamental principles of a vision for good work, participants at the Forum considered where change is most urgently required to achieve this vision and the barriers to the changes. The main outcomes of these discussions are summarized in Table 1: the first column identifies the main challenges (see the third section, above) that currently prevent good food work from becoming a reality and the conditions underpinning them. The second column suggests enabling factors required to make good work the norm across food systems. The third column char-

acterizes the change sought to realize this element of the vision. As captured in challenge 7, all aspects of the problem are highly interconnected and deeply embedded in global social and economic patterns. Any analysis and plan of action therefore requires a systems approach that considers all parts of a food system and how they interact with wider socio-ecological systems.

It should be apparent from the aspirations in Table 1 that making positive progress requires action both to undo what is "bad" in current systems and to shape alternatives that enact what is "good"; prefiguring alternatives while leaving flawed food systems in place is insufficient. Discussions also highlighted how existing controls and regulations should enable good food work but currently do not, due to inadequate implementation or weak enforcement. Enforcing such regulations more robustly is an obvious action for immediate attention.

Discussions during the Forum also worked to identify priority actions and who might be well placed to initiate them. Participants identified actions in four key domains associated with key actors and spheres of influence: Government, Civil Society, the Private Sector, and Research (Table 2). The actions and enabling pathways most relevant for international agencies such as the FAO, ILO, and the Office of the High Commissioner for Human Rights were captured in our open letter, which highlighted actions relevant to the UN IYFV and beyond (Good Work for Good Food Forum, 2021). Given the international participation and purview of the discussion, it was clear that any action would need to be adapted to territorial context while taking a multifaceted approach targeting all parts of the system.

While the Forum identified opportunities for action, some notes of caution that emerged from our discussions should be acknowledged. First, there are concerns about the limitations and problematic nature of consumer-focused solutions such as product labeling to certify better working conditions, as they tend to act weakly on worker conditions and emphasize individual action and care for self, rather than the collective action and care for others (Brown & Getz, 2008). A second note of caution was sounded in relation to the potential for small-scale agroecological farming as a transforma-

tion pathway. Increasingly promoted by the FAO as having an important role in post-pandemic food system resilience, agroecological and localized food systems can improve environmental and health outcomes (FAO, 2018; Higher Level Panel of Experts, 2019; Wittman et al., 2017). But there remain unanswered questions around the politics, ethics, and sustainability of labor relations that feature heavily in this production (Dumont & Baret, 2017; Ekers et al., 2016; Weiler et al., 2016). Finally, a third unresolved tension that surfaced was whether and how unwaged reproductive labor—an essential part of food systems—features and is accounted for in a good food work agenda. These caveats highlight that there is unlikely to be a single, or simple, pathway toward good food work. It is our hope, however, that the preliminary vision, pathways, and priority actions we present here can be another step in advancing work toward more fair and sustainable labor futures.

Conclusion

The objective of the Forum was to facilitate dialogue between international scholar-activists working on food labor and to coalesce around a vision for good food work. We offer this vision to scholar-activists and others who seek to both advocate for better work across food systems, and to counter visions that fail to consider implica-

Table 2. Priority Actions to Advance Good Food Work for Key Actors in Government, Civil Society, the Private Sector, and Research

Actor	Priority actions
Government	1. Ensure that the number of labor inspectors meets minimum targets set by the ILO; 2. Ensure that national labor inspectorates are sufficiently resourced and independent from migration enforcement; 3. Implement labor law with remedies and mechanisms of redress for migrant and seasonal workers; and 4. Support seasonal and migrant workers to access remedies for the contravention of labor law.
Civil Society	1. Build solidarities and alliances across movements, especially between food and labor movements; 2. Follow workers' leads and center their demands and experiences; and 3. Advocate comprehensively for all needs across the good food work agenda across food systems.
Private Sector	1. Ensure transparency in labeling and information to enable informed consumer choices; 2. Prioritize unionized sourcing; 3. Implement true cost accounting of social and environmental costs; and 4. Create jobs and career pathways offering permanence and full employment rights.
Research	1. Deliver transdisciplinary work to build understandings of how to support good food work; 2. Take action on worker precarity within university spaces; and 3. Conduct comparative policy analysis to identify best practices across countries.

tions for workers. While not presenting here examples of the vision or pathways in action, participants in the Forum noted positive practices during our discussions; learning about and from such initiatives is a future aspiration for the network emerging from the Forum. This collective learning, and awareness of alternatives to current food work regimes provides hope that better food work is possible.

In addition to the proposed vision and pathways toward it, this work has surfaced questions and tensions that we and others need to grapple with in order to make progress toward good food work. How do we help elevate the voices and power of food workers, making them visible in the context of exploitative structural forces, including capitalism, racism, xenophobia, and sexism? And, how do we do so in ways that do not tokenize their participation, and that are based in trust? How can we better contribute to the development of governance and policy for food workers' rights, especially for (im)migrant workers? What are creative ways that scholar-activists can better bridge academic, social movement and policy spaces through our work?

While work in agriculture and food service are well-studied, transportation, online retail, gig work, haulage and logistics are under-researched forms of food work. Fuller attention to these is required to enable a fully systemic view on food work. Forum participants also highlighted the need for further interrogation of feminist perspectives on food labor in the home, and for decolonial perspectives on the global peasant movement which oppose the neoliberal industrial food system and its corporations. Both these important forms of food work remind us to consider the value and needs of workers beyond those engaged in paid labor, for whom the nature of good work may be quite different. But care is required to ensure that a vision inclusive of unpaid labor does not dilute or undermine demands for enforceable protections for waged workers.

The COVID-19 pandemic revealed the brittle nature of our food system (Hendrickson, 2020), and the ways that labor inequities undermine resilience (Klassen & Murphy, 2020). The urgent need for changes regarding food work was made abundantly clear, representing a possible opening to make some of these. In her contribution to the Forum, Minkoff-Zern described similar historic moments of heightened public consciousness of food labor injustices which tended to be short-lived, as public awareness of workers' plight gave way to individualistic consumer interests around food health or safety. How do we ensure that the current moment to improve conditions for food workers is not lost? Such a challenge can seem overwhelming, but perhaps our best start point is as Guthman urged, "We need lots and lots of organizing!" Given the scale of the challenge, and that collective action seems the most fruitful path forward, it is heartening that the participants in our Forum expressed a will to continue cooperating. We must begin by finding effective, fair ways to learn from and act in solidarity with food workers themselves.

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References

Autor, D., Dorn, D., Katz, L. F., Patterson, C., & Reenen, J. V. (2017). Concentrating on the fall of the labor share. *American Economic Review*, *107*(5), 180–185. https://doi.org/10.1257/aer.p20171102

Besky, S., & Brown, S. (2015). Looking for work: Placing labor in food studies. *Labor: Studies in Working-Class History of the Americas*, *12*(1–2), 19–43. https://doi.org/10.1215/15476715-2837484

Birner, R., Daum, T., & Pray, C. (2021). Who drives the digital revolution in agriculture? A review of supply-side trends, players and challenges. *Applied Economic Perspectives and Policy*, *43*(4), 1260–1285. https://doi.org/10.1002/aepp.13145

Blanchette, A. (2020). *Porkopolis: American animality, standardized life, and the factory farm*. Duke University Press. https://doi.org/10.1215/9781478012047

Brown, S., & Getz, C. (2008). Privatizing farm worker justice: Regulating labor through voluntary certification and labeling. *Geoforum*, *39*(3), 1184–1196. https://doi.org/10.1016/j.geoforum.2007.01.002

Carlisle, L., Montenegro de Wit, M., DeLonge, M. S., Iles, A., Calo, A., Getz, C., Ory, J., Munden-Dixon, J., Galt, R., Melone, B., Knox, R., & Press, D. (2019). Transitioning to sustainable agriculture requires growing and sustaining an ecologically skilled workforce. *Frontiers in Sustainable Food Systems*, *3*(96), 1–8. https://doi.org/10.3389/fsufs.2019.00096

Carolan, M. (2020). Automated agrifood futures: Robotics, labor and the distributive politics of digital agriculture. *The Journal of Peasant Studies*, *47*(1), 184–207. https://doi.org/10.1080/03066150.2019.1584189

Clapp, J. (2021). The problem with growing corporate concentration and power in the global food system. *Nature Food*, *2*(6), 404–408. https://doi.org/10.1038/s43016-021-00297-7

Clapp, J. (2022, March 29). *Global food security and the war in Ukraine* [Webinar presentation]. Global Donor Platform for Rural Development. https://www.youtube.com/watch?v=vRHE4zWFLC4

Clapp, J., Noyes, I., & Grant, Z. (2021). The Food Systems Summit's failure to address corporate power. *Development*, *64*(3–4), 192–198. https://doi.org/10.1057/s41301-021-00303-2

Coolsaet, B. (2016). Towards an agroecology of knowledges: Recognition, cognitive justice and farmers' autonomy in France. *Journal of Rural Studies*, *47*(A), 165–171. https://doi.org/10.1016/j.jrurstud.2016.07.012

Costello, C., & Freedland, M. (Eds.). (2014). *Migrants at work: Immigration and vulnerability in labour law*. Oxford University Press. https://doi.org/10.1093/acprof:oso/9780198714101.001.0001

Douglas, L. (2020, April 22). *Mapping Covid-19 outbreaks in the food system*. Food and Environment Reporting Network. https://thefern.org/2020/04/mapping-covid-19-in-meat-and-food-processing-plants/

Dumont, A. M., & Baret, P. V. (2017). Why working conditions are a key issue of sustainability in agriculture? A comparison between agroecological, organic and conventional vegetable systems. *Journal of Rural Studies*, *56*, 53–64. https://doi.org/10.1016/j.jrurstud.2017.07.007

Duncan, E., Rotz, S., Magnan, A., & Bronson, K. (2022). Disciplining land through data: The role of agricultural technologies in farmland assetization. *Sociologia Ruralis*, *62*(2), 231–249. https://doi.org/10.1111/soru.12369

Ekers, M., & Levkoe, C. Z. (2015). Transformations in agricultural non-waged work: From kinship to intern and volunteer labor: A research brief. *Journal of Agriculture, Food Systems, and Community Development*, *6*(2), 179–183. https://doi.org/10.5304/jafscd.2016.062.010

Ekers, M., Levkoe, C. Z., Walker, S., & Dale, B. (2016). Will work for food: Agricultural interns, apprentices, volunteers, and the agrarian question. *Agriculture and Human Values*, *33*(3), 705–720. https://doi.org/10.1007/s10460-015-9660-5

Fakhri, M. (2021). A trade agenda for the right to food. *Development*, *64*(3–4), 212–219.
https://doi.org/10.1057/s41301-021-00305-0

Finley, L., Chappell, M. J., Thiers, P., & Moore, J. R. (2018). Does organic farming present greater opportunities for employment and community development than conventional farming? A survey-based investigation in California and Washington. *Agroecology and Sustainable Food Systems*, *42*(5), 552–572.
https://doi.org/10.1080/21683565.2017.1394416

Focus on Labour Exploitation (FLEX). (2021). *Assessment of the risks of human trafficking for forced labour on the UK Seasonal Workers Pilot*. https://www.labourexploitation.org/publications/assessment-risks-human-trafficking-forced-labour-uk-seasonal-workers-pilot

Food and Agriculture Organization of the United Nations [FAO]. (2018). *The 10 elements of agroecology: Guiding the transition to sustainable food and agricultural systems*. https://fao.org/3/I9037EN/i9037en.pdf

FAO. (2020). *Fruit and vegetables¾Your dietary essentials. The International Year of Fruits and Vegetables, 2021, background paper*. https://doi.org/10.4060/cb2395en

FAO. (2021). *The International Year of Fruits and Vegetables, 2021*. https://www.fao.org/fruits-vegetables-2021/en/

Food Chain Workers Alliance. (2012). *The hands that feed us: Challenges and opportunities for workers along the food chain* [Report]. https://foodchainworkers.org/2012/06/the-hands-that-feed-us/

Freshour, C. (2017, November 7). *"Ain't no life for a mother!" Racial capitalism and the crisis of social reproduction* [Forum essay]. Society + Space. https://www.societyandspace.org/articles/aint-no-life-for-a-mother-racial-capitalism-and-the-crisis-of-social-reproduction

Galt, R. E. (2013). The moral economy is a double-edged sword: Explaining farmer earnings and self-exploitation in community-supported agriculture. *Economic Geography*, *89*(4), 341–365. https://doi.org/10.1111/ecge.12015

Gertel, J., & Sippel, S. R. (Eds.). (2017). *Seasonal workers in Mediterranean agriculture: The social costs of eating fresh*. Routledge.

Getz, C., Brown, S., & Shreck, A. (2008). Class politics and agricultural exceptionalism in California's organic agriculture movement. *Politics & Society*, *36*(4), 478–507. https://doi.org/10.1177/0032329208324709

Good Work for Good Food Forum. (2021, October). *Open letter*. Organise Platform.
https://the.organise.network/campaigns/teamup-good-work-for-good-food

Gottlieb, R., & Joshi, A. (2010). *Food justice*. MIT Press. https://doi.org/10.7551/mitpress/7826.001.0001

Gray, M. (2014). *Labor and the locavore: The making of a comprehensive food ethic*. University of California Press.
https://doi.org/10.1525/9780520957060

Guthman, J. (2019). *Wilted: Pathogens, chemicals, and the fragile future of the strawberry industry*. University of California Press.
https://doi.org/10.1525/9780520973343

Harrison, J. L., & Getz, C. (2015). Farm size and job quality: Mixed-methods studies of hired farm work in California and Wisconsin. *Agriculture and Human Values*, *32*(4*)*, 617–634. https://doi.org/10.1007/s10460-014-9575-6

Hendrickson, M. K. (2020). Covid lays bare the brittleness of a concentrated and consolidated food system. *Agriculture and Human Values*, *37*(3), 579–580. https://doi.org/10.1007/s10460-020-10092-y

Higher Level Panel of Experts (HLPE). (2019). *Agroecological and other innovative approaches for sustainable agriculture and food systems that enhance food security and nutrition* (HLPE Report No. 14). Higher Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security. https://www.fao.org/3/ca5602en/ca5602en.pdf

Holmes, S. M. (2013). *Fresh fruit, broken bodies: Migrant farmworkers in the United States*. University of California Press.
http://www.jstor.org/stable/10.1525/j.ctt7zw45x

Howard, N., & Forin, R. (2019). Migrant workers, 'modern slavery' and the politics of representation in Italian tomato production. *Economy and Society*, *48*(4), 579–601. https://doi.org/10.1080/03085147.2019.1672426

Howe, J., Charlesworth, S., & Brennan, D. (2019). Migration pathways for frontline care workers in Australia and New Zealand: Front doors, side doors, back doors and trapdoors. *University of New South Wales Law Journal*, *42*(1), 211–241. https://doi.org/10.53637/KFDM2981

Howe, J., Reilly, A., Clibborn, S., van den Broek, D., & Wright, C. F. (2020). Slicing and Dicing Work in the Australian Horticulture Industry: Labour Market Segmentation within the Temporary Migrant Workforce. *Federal Law Review*, *48*(2), 247–271. https://doi.org/10.1177/0067205X20905956

Huber, M. (2020, April 19). Socialise the food system. *Tribune Magazine*.
   https://tribunemag.co.uk/2020/04/socialise-the-food-system

International Labour Organization [ILO]. (2006). Strategies and practice for labour inspection (Document GB.297/ESP/3). ILO Governing Body, 297th Session.
   https://www.ilo.org/gb/GBSessions/WCMS_GB_297_ESP_3_EN/lang--en/index.htm

Jansen, K. (2000). Labour, livelihoods and the quality of life in organic agriculture in Europe. *Biological Agriculture and Horticulture*, *17*(3), 247–278. https://doi.org/10.1080/01448765.2000.9754845

Kalleberg, A. L. (2013). *Good Jobs, Bad Jobs: The Rise of Polarized and Precarious Employment Systems in the United States*. Russel Sage Foundation. https://doi.org/10.1177/0950017013480403

Khan, L. M., & Vaheesan, S. (2017). Market Power and Inequality: The Antitrust Counterrevolution and Its Discontents. *Harvard Law & Policy Review*, *11*, 61.

Klassen, S., & Murphy, S. (2020). Equity as both a means and an end: Lessons for resilient food systems from COVID-19. *World Development*, *136*(105104), 3. https://doi.org/10.1016/j.worlddev.2020.105104

Lakhiar, I. A., Jianmin, G., Syed, T. N., Chandio, F. A., Buttar, N. A., & Qureshi, W. A. (2018). Monitoring and Control Systems in Agriculture Using Intelligent Sensor Techniques: A Review of the Aeroponic System. *Journal of Sensors*, *2018*, 1–18. https://doi.org/10.1155/2018/8672769

LeBaron, G. (2020). *Combatting Modern Slavery: Why Labour Governance is Failing and What We Can Do About It*. Polity.

Levkoe, C. Z., McClintock, N., Minkoff-Zern, L.-A., Coplen, A., Gaddis, J., Lo, J., Tendick-Matesanz, F., & Weiler, A. M. (2016). Forging Links Between Food Chain Labor Activists and Academics. *Journal of Agriculture, Food Systems, and Community Development*, *6*(2), 1–14. https://doi.org/10.5304/jafscd.2016.062.009

Levkoe, C. Z., & Offeh-Gyimah, A. (2020). Race, privilege and the exclusivity of farm internships: Ecological agricultural education and the implications for food movements. *Environment and Planning E: Nature and Space*, *3*(2), 580–598. https://doi.org/10.1177/2514848619872616

Liu, Y. Y., & Apollon, D. (2011). *The Color of Food*. Race Forward.
   https://www.raceforward.org/sites/default/files/downloads/food_justice_021611_F.pdf

Lo, J., & Jacobson, A. (2011). Human Rights from Field to Fork: Improving Labor Conditions for Food-sector Workers by Organizing across Boundaries. *Race/Ethnicity: Multidisciplinary Global Contexts*, *5*(1), 61–82.
   https://doi.org/10.2979/racethmulglocon.5.1.61

Mehrabi, Z., McDowell, M. J., Ricciardi, V., Levers, C., Martinez, J. D., Mehrabi, N., Wittman, H., Ramankutty, N., & Jarvis, A. (2021). The global divide in data-driven farming. *Nature Sustainability*, *4*(2), 154–160.
   https://doi.org/10.1038/s41893-020-00631-0

Mešić, N., & Wikström, E. (2021). Ruptures and acts of citizenship in the Swedish berry-picking industry. *Journal of Rural Studies*, *88*, 518–526. https://doi.org/10.1016/j.jrurstud.2021.04.011

Minkoff-Zern, L.-A. (2014). Challenging the Agrarian Imaginary: Farmworker-led food movements and the potential for farm labor justice. *Human Geography*, *7*(1), 85–101. https://doi.org/10.1177/194277861400700107

Minkoff-Zern, L.-A. (2017). The case for taking account of labor in sustainable food systems in the United States. *Renewable Agriculture and Food Systems*, *32*(6), 576–578. https://doi.org/10.1017/S1742170517000060

Minkoff-Zern, L.-A., & Mares, T. (in press). *Will work for food: Labor across the food chain*. University of California Press.

Montt, G., & Luu, T. (2019). Does Conservation Agriculture Change Labour Requirements? Evidence of Sustainable Intensification in Sub-Saharan Africa. *Journal of Agricultural Economics*, 1477-9552.12353.
   https://doi.org/10.1111/1477-9552.12353

Pilgeram, R. (2011). "The only thing that isn't sustainable¼is the farmer": Social sustainability and the politics of class among Pacific Northwest farmers engaged in sustainable farming. *Rural Sociology*, *76*(3), 375–393.
   https://doi.org/10.1111/j.1549-0831.2011.00051.x

Pitt, H. (2022). *Knowing to grow: Increasing the resilience of plant centred food production skills* [Research briefing]. School of Geography and Planning, Cardiff University.
   https://www.cardiff.ac.uk/__data/assets/pdf_file/0018/2633211/KtoG-Findings-Biling.pdf

Reisman, E. (2021). Sanitizing agri-food tech: COVID-19 and the politics of expectation. *The Journal of Peasant Studies*, *48*(5), 910–933. https://doi.org/10.1080/03066150.2021.1934674

Rose, D. C., & Chilvers, J. (2018). Agriculture 4.0: Broadening responsible innovation in an era of smart farming. *Frontiers in Sustainable Food Systems*, *2*, Article 87. https://doi.org/10.3389/fsufs.2018.00087

Rotz, S., Gravely, E., Mosby, I., Duncan, E., Finnis, E., Horgan, M., LeBlanc, J., Martin, R., Tait Neufeld, H., Nixon, A., Pant, L., Shalla, V., & Fraser, E. (2019). Automated pastures and the digital divide: How agricultural technologies are shaping labour and rural communities. *Journal of Rural Studies*, *68*, 112–122. https://doi.org/10.1016/j.jrurstud.2019.01.023

Rye, J. F., & Scott, S. (2018). International labour migration and food production in rural Europe: A review of the evidence. *Sociologia Ruralis*, *58*(4), 928–952. https://doi.org/10.1111/soru.12208

Sachs, C., Allen, P., Terman, A. R., Hayden, J., & Hatcher, C. (2014). Front and back of the house: Socio-spatial inequalities in food work. *Agriculture and Human Values*, *31*(1), 3–17. https://doi.org/10.1007/s10460-013-9445-7

Sbicca, J. (2015). Food labor, economic inequality, and the imperfect politics of process in the alternative food movement. *Agriculture and Human Values*, *32*(4), 675–687. https://doi.org/10.1007/s10460-015-9582-2

Sbicca, J. (2017). Resetting the "good food" table: Labor and food justice alliances in Los Angeles. In A. Alkon & J. Guthman (Eds.), *The new food activism: Opposition, cooperation and collective action* (pp. 107–132). University of California Press. https://doi.org/10.1525/california/9780520292130.003.0005

Soper, R. (2019). How wage structure and crop size negatively impact farmworker livelihoods in monocrop organic production: Interviews with strawberry harvesters in California. *Agriculture and Human Values*, *37*(2), 325–336. https://doi.org/10.1007/s10460-019-09989-0

Timmermann, C., & Félix, G. F. (2015). Agroecology as a vehicle for contributive justice. *Agriculture and Human Values*, *32*(3), 523–538. https://doi.org/10.1007/s10460-014-9581-8

Underhill, E., & Rimmer, M. (2016). Layered vulnerability: Temporary migrants in Australian horticulture. *Journal of Industrial Relations*, *58*(5), 608–626. https://doi.org/10.1177/0022185615600510

Wald, S. D. (2011). Visible farmers/invisible workers: Locating immigrant labor in food studies. *Food, Culture & Society*, *14*(4), 567–586. https://doi.org/10.2752/175174411X13046092851479

Wax, E. (2020, March 25). *'There's work on the farm' EU countries tell the newly unemployed*. POLITICO. https://www.politico.eu/article/coronavirus-agriculture-coronavirus-hit-countries-to-newly-unemployed-help-us-farm/

Weiler, A. M. (2022). Seeing the workers for the trees: Exalted and devalued manual labour in the Pacific Northwest craft cider industry. *Agriculture and Human Values*, *39*(1), 65–78. https://doi.org/10.1007/s10460-021-10226-w

Weiler, A. M., & Encalada Grez, E. (2022). Rotten asparagus and just-in-time workers: Canadian agricultural industry framing of farm labour and food security during the COVID-19 pandemic. *Canadian Food Studies / La Revue Canadienne Des Études Sur l'alimentation*, *9*(2), 38–52. https://doi.org/10.15353/cfs-rcea.v9i2.521

Weiler, A. M., Otero, G., & Wittman, H. (2016). Rock stars and bad apples: Moral economies of alternative food networks and precarious farm work regimes. *Antipode*, *48*(4), 1140–1162. https://doi.org/10.1111/anti.12221

Weiler, A. M., Sexsmith, K., & Minkoff-Zern, L.-A. (2020). Parallel precarity: A comparison of U.S. and Canadian agricultural guestworker programs. *The International Journal of Sociology of Agriculture and Food*, *26*(2), 143–163. https://doi.org/10.48416/ijsaf.v26i2.57

Wittman, H., Chappell, M. J., Abson, D. J., Bezner Kerr, R., Blesh, J., Hanspach, J., Perfecto, I., & Fischer, J. (2017). A social–ecological perspective on harmonizing food security and biodiversity conservation. *Regional Environmental Change*, *17*(5), 1291–1301. https://doi.org/10.1007/s10113-016-1045-9

Wittman, H., James, D., & Mehrabi, Z. (2020). Advancing food sovereignty through farmer-driven digital agroecology. *International Journal of Agriculture and Natural Resources*, *47*(3), 235–248. https://doi.org/10.7764/ijanr.v47i3.2299

Wozniacka, G. (2020, March 25). *Farmworkers are in the coronavirus crosshairs*. Civil Eats. https://civileats.com/2020/03/25/farmworkers-are-in-the-coronavirus-crosshairs/

Civil society engagement in food systems governance in Canada: Experiences, gaps, and possibilities

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Abstract

Civil society organizations (CSOs) commonly experience food systems governance as imposed by governments from the top down and as unduly influenced by a small group of private sector actors that hold disproportionate power. This uneven influence significantly impacts the activities and relationships that determine the nature and orientation of food systems. In contrast, some CSOs have sought to establish participatory governance structures that are more democratic, accessible, collaborative, and rooted in social and environmental justice. Our research seeks to better understand the experiences of CSOs across the food systems governance landscape and critically analyze the successes, challenges, and future opportunities for establishing collaborative governance processes

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with the goal of building healthier, sustainable, and more equitable food systems. This paper presents findings from a survey of CSOs in Canada to identify who is involved in this work, key policy priorities, and opportunities and limitations experienced. Following the survey, we conducted interviews with a broad cross-section of CSO representatives to deepen our understanding of experiences engaging with food systems governance. Our findings suggest that what food systems governance is, how it is experienced, and what more participatory structures might look like are part of an emergent and contested debate. We argue for increased scholarly attention to the ways that proponents of place-based initiatives engage in participatory approaches to food systems governance, examining both current and future possibilities. We conclude by identifying five key gaps in food systems governance that require additional focus and study: (1) Describing the myriad meanings of participatory food systems governance; (2) Learning from food movement histories; (3) Deepening meaningful Indigenous–settler relationships; (4) Addressing food systems labor issues; and (5) Considering participatory food systems governance in the context of COVID-19.

Keywords
Civil Society, Canada, COVID-19, Pandemic, Food Movements, Food Systems, Governance, Indigenous-Settler Relationships, Labor

Introduction
In September 2021, the United Nations held a Food Systems Summit (UNFSS) as part of a broader effort toward achieving its Sustainable Development Goals (SDGs) by 2030. The UNFSS brought together food systems leaders from across the globe to work towards a healthier, more sustainable, and more equitable food system. Promotional materials proclaimed the gathering a "summit for everyone everywhere—a people's summit."[1] Despite the progressive discourse used throughout the event and the investment from public, private, and nonprofit sectors, many people and groups at the front lines of food systems work denounced the

summit. Proponents within food sovereignty movements, academics, and representatives from civil society organizations (CSO) contended that powerful states along with corporate and philanthropic interests had co-opted the UNFSS. More specifically, they identified the lack of transparency and accountability, limited focus on human rights and issues of gender and social justice, appropriation of civil society narratives and Indigenous knowledge, and top-down processes that usurped established democratic processes such as the Civil Society and Indigenous Peoples' Mechanism (Canfield, Anderson et al., 2021; Canfield, Duncan et al., 2021; Civil Society and Indigenous Peoples Mechanism, 2021). They described the UNFSS as a governance failure and criticized the flawed assumption that simply bringing people to the table through multistakeholder processes would result in broad engagement and participation.

While past food summits were led by countries willing to engage in collective decision-making, the UNFSS included transnational companies and corporate philanthropic organizations without clear rules of engagement, thus shifting power dynamics and the balance of influence (Chandrasekaran et al., 2021; Clapp et al., 2021; Montenegro, 2021). The unanswered criticisms resulted in a boycott led by more than 500 CSO members of the Civil Society and Indigenous Peoples' Mechanism along with hundreds of food systems researchers and educators from across the globe (Agroecology Research-Action Coalition, 2021; Food Systems 4 People, 2021).

The debates surrounding the UNFSS highlight the need for more focused attention from researchers and practitioners on questions of power in relation to civil society engagement in food systems governance (Andrée et al., 2019; Duncan & Claeys, 2018). Food systems governance is commonly experienced by CSOs as imposed top-down by governments and unduly influenced by a small group of private sector actors that hold a disproportionate amount of power (Arthur et al., 2022; Clapp, 2020; Koç et al., 2008). This uneven influence significantly impacts the activities and relationships that determine the nature and orientation of food systems. In contrast, CSOs have sought to

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[1] For details of the United Nations Food Systems Summit, see https://www.un.org/en/food-systems-summit/about.

establish governance structures that are more democratic, accessible, collaborative, and rooted in social and environmental justice (Andrée et al., 2019; Hammelman et al., 2020).

Our research seeks to better understand the experiences of CSOs across the food systems governance landscape and critically analyze the successes, challenges, and future opportunities for establishing collaborative governance processes with the goal of building healthier, more equitable, and sustainable food systems. We adopt a food systems lens that considers not only supply chains (how food is produced/harvested, processed, distributed, consumed, and disposed of), but also the myriad ways that supply chains impact and are impacted by food security and nutrition, producer and harvester livelihoods, labor rights, Indigenous self-determination, economic development, equity and social inclusion, culture, urban–rural linkages, and environmental concerns (Tansey & Worsley, 1995). A food systems approach recognizes that these components do not operate in a vacuum but influence and shape one another. It also recognizes the impact of historical and ongoing oppressions such as the institutions of white supremacy, patriarchy, and settler colonialism in shaping the dominant food system (Alkon & Agyeman, 2011; Cadieux & Slocum, 2015). The food systems lens examines governance—the broad range of policies, laws, regulations, and de facto practices that shape and influence the nature and orientation of our food systems (Clark et al., 2021; Kennedy & Liljeblad, 2017; Kugelberg et al., 2021). Governance involves both explicit rules and implicit practices, customs, and assumptions related to *who* and *what* is considered part of a food system, who should be included in governance decisions, and in what ways.

Our research considers the role of CSOs in food systems governance in Canada and the opportunities for more collaborative forms of governance. Established in 2019, our project brings together a group of scholars from Lakehead University, Carleton University, and Saint Paul University alongside community partners who directly focus on food systems governance: Food Secure Canada/Réseau pour une alimentation durable (FSC/RAD), Plenty Canada, the Food Communi-

ties Network/Réseau Communautés Nourricières (FCN/RCN), and Sustain Ontario: The Alliance for Healthy Food and Farming. This paper summarizes findings from two years of research, pointing to central insights from our exploratory work and suggesting future directions for scholarship. Considering the dearth of research about participatory food systems governance in Canada, we conducted a national survey of CSOs to understand who is involved in this work, major policy priorities, and significant opportunities and limitations. Following the survey, we conducted interviews with a broad cross-section of CSOs to deepen our understanding of their experiences engaging with food systems governance. Our findings suggest that what food systems governance is, how it is experienced, and what more participatory structures might look like are part of an emergent and contested debate. We argue for increased scholarly attention to the ways that proponents of place-based initiatives engage in participatory approaches to food systems governance, examining both current and future possibilities. We conclude by identifying five key gaps in food systems governance that require additional study.

Research Context

Over the past two decades, CSOs in Canada involved in food systems-related work have had significant successes, evident in the exponential growth of place-based initiatives addressing local needs and supporting people and groups across the food chain. Studies have documented the achievements of a wide range of initiatives operating across scales and sectors such as community gardens and farmers markets, food access projects, sustainable agriculture initiatives, school food programs, and environmental health and food justice campaigns (Blay-Palmer, 2016; Knezevic et al., 2017; Miller, 2008; Wittman et al., 2011). CSOs have increasingly connected with each other to augment their reach and impact (Constance et al., 2014; Goodman et al., 2012; Levkoe, 2014). Research indicates how the food system lies at the nexus of pressing issues facing Canadians, including food insecurity (Council of Canadian Academies, 2014; Tarasuk et al., 2013), the climate crisis (Schnitter & Berry, 2019; Vermeulen et al., 2012),

diet-related disease (Institute for Health Metrics and Evaluation, 2010), farmer attrition and farm-land loss (Beaulieu, 2015; Miller, 2016), and declining biodiversity (International Panel of Experts on Sustainable Food Systems , 2016). In the face of these complex challenges, CSOs that understand these issues both practically and theoretically have much to contribute to food systems governance-related issues.

The growing literature on food systems governance and participation provides insights into the developments and gaps in current debates. Food systems today are governed primarily through neoliberal market-based structures with power concentrated in the hands of a small number of large corporate firms and wealthy governments (Clapp, 2021). Through control of the governance landscape, elite actors tend to orient decision making towards efficiency and profit rather than food provisioning and sustainability. Recognizing these challenges, a wide range of CSOs across sectors and scales seek to advance alternative forms of governance rooted in equity and the right to food (Andrée et al., 2019; Burnett, 2014; Lang et al., 2009). These actors aim to prioritize the needs of small-scale farmers, workers across the food chain, and those most negatively impacted by the dominant food system. For example, Desmarais et al. (2017) examine the limitations of current political–economic structures and the possibilities of integrating issues of justice and sustainability with state laws, policies, and programs. In a review of the scholarly literature, Arthur et al. (2022) identify the need to consider multiple perspectives of how food systems are governed to address complex global challenges. Likewise, Andrée et al. (2019) argue that CSOs take advantage of a wide range of structures (e.g., multistakeholderism, co-governance, and self-governance) in their engagement with the state. Several scholars note that understanding food systems governance requires analysis of the different actors involved, their relationships with each other, and their engagement with critical issues (Arthur et al. 2022; Moragues-Faus, 2020).

Increasingly, civil society actors actively engage in food systems governance work in diverse ways. This evolution toward more direct and sustained engagement with the state and industry bodies has proven promising on many fronts, and scholars are more fully recognizing inclusion of CSO representatives as fundamental to deliberative democracy and the realization of healthier, more equitable, and more sustainable food systems (Andrée et al., 2014; Desmarais et al., 2017; Koç et al., 2008). Many scholars have recognized the value of civil society engagement in governance and the knowledge and experience that social movements bring to realizing democratic processes (Andrée et al., 2019; Kooiman, 2003; Minnery, 2007). Both collaborative and confrontational, CSO engagement in governance activities has focused not only on offering potent critiques outside formal government relations but also on serving as agents of systemic reform (Clark et al., 2021; Desmarais et al., 2017; Renting et al., 2012).

A review of CSO activities since the late 1970s in Canada illustrates the enhanced engagement in governance processes. The People's Food Commission (PFC) represents one of the first collaborative efforts that brought together CSOs using a food systems approach. Established in 1977, this grassroots initiative organized hearings across Canada to collect testimony from Canadians on the state of the dominant food system. In its final report, *The Land of Milk and Money*, the PFC explicitly situated itself outside of the state and identified the impacts of corporate and elite power imbalances on food systems decision making (People's Food Commission, 1980). In 2001, a national gathering of food systems scholars and practitioners in Toronto expressed greater openness to working with the government. Bringing together 150 farmers and representatives from nonprofit and community organizations and government agencies, the group discussed plans to increase Canada's commitment to food security both domestically and abroad (Koç & MacRae, 2001). Food Secure Canada/Réseau pour une alimentation durable (FSC/RAD),[2] a national-level social movement network

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[2] FSC/RAD describes itself as a "pan-Canadian alliance of organizations and individuals working together to advance food security and food sovereignty through three interlocking goals: zero hunger, healthy and safe food, and sustainable food systems" (FSC/RAD, 2018).

organization, was born at this workshop. In 2008, FSC/RAD played a central role in establishing the People's Food Policy (PFP) project, culminating in an influential report that laid out key policy principles for a food system rooted in food sovereignty (People's Food Policy, 2011). In contrast to the PFC, the PFP had more targeted goals of engaging and influencing the federal government and other decision makers (Levkoe & Sheedy, 2017; Martin & Andrée, 2017). Following the PFP report, and facilitated in large part by FSC/RAD, the United Nations Special Rapporteur on the Right to Food (UNSRRF) conducted a Mission to Canada, the first to a country in the global north (United Nations General Assembly, 2012).

CSOs have played a significant and decisive role in ongoing efforts to establish a national food policy, including participation in the formal government consultation process launched in May 2017 (Levkoe & Wilson, 2019). Parallel to these efforts, FSC/RAD also played a leadership role in bringing together an emerging collaboration of actors from across the food systems calling for a national food policy council. Through the establishment of the Ad Hoc Working Group for Food Policy Governance, a wide range of food and agricultural groups, CSOs, and industry actors called for a mechanism through which the government would "proactively engage with these diverse stakeholders to provide ongoing input into the implementation of *A Food Policy for Canada*" (Ad Hoc Working Group for Food Policy Governance, 2017, p. 4). Following the Government of Canada's launch of the country's first Food Policy for Canada (FP4C) in 2019, the efforts by food and agricultural groups, CSOs, and industry actors contributed to the establishment of a new advisory body to the Minister of Agriculture in 2021, the Canadian Food Policy Advisory Council (Agriculture and Agri-Food Canada, 2021; Andrée et al., 2021).

At the regional level, food policy groups (FPGs) have grown in number and scope over the past decade (Blay-Palmer, 2009; Levkoe et al., 2021; Mendes, 2008). FPGs are place-based organizations that rely on members situated across a wide range of sectors and issue areas to come together through a food systems approach that involves a range of social and environmental factors. FPGs include food systems actors across the food chain such as networks of residents, nonprofit organizations, small businesses, and public sector representatives. They generally aim to provide an integrated approach to municipal and regional food systems policies, programs, and planning and to facilitate participatory governance mechanisms (Schiff, 2008; Schiff et al., 2022). For many FPGs, diverse partnerships are a primary element of their success (Ilieva, 2016). For example, studies have demonstrated that relationships with government leaders and peri-governmental sectors (e.g., public health) are especially valuable in increasing legitimacy and supporting policy-related objectives (Bassarab et al., 2019; Gupta et al., 2018). A scan of grey literature of food policy councils by the Coalition for Healthy School Food and Food Communities Network/Réseau Communautés Nourricières in 2021 indicates about 111 FPGs exist across Canada, including food policy councils, food systems alliances, food strategy tables, and neighborhood initiatives (FCN-RCN, 2021a). To connect these FPGs with Indigenous and settler governance tables, FCN-RCN emerged in 2020 with the goal of sharing "ideas, knowledge, tools, and experiences around building food resiliency and decreasing food insecurity, networking a wide diversity of communities coast-to-coast-to-coast, in both French and English" (FCN-RCN, 2021b).

Methods
This paper explores the ways that CSOs across Canada actively engage in food systems governance and construct more participatory forms of governance. To better understand this emerging community of practice, we conducted a Canada-wide survey in both French and English targeted at CSOs. The survey ran from November 2019 to March 2020 and was distributed online through several national and regional listservs and sent directly to individuals at relevant organizations known to the research team. It explored different kinds of food systems governance efforts across different scales, issues, and types of organizations involved. The survey targeted CSO representatives with the following characteristics: (1) mandates that involved building healthy, equitable, and sustainable food systems; (2) direct involvement in food

systems governance[3] work at the regional or national level; (3) familiarity with the CSO operations and decision-making responsibility (e.g., Executive Directors, Program Managers, etc.). We collected a total of 69 complete responses.

Next, we undertook 65 interviews with leaders from CSOs active on an array of food systems issues between June 2020 and February 2022. To identify interview participants, we drew on a sample of survey respondents (i.e., individuals who had completed the survey or were named as important contacts by survey respondents) or individuals that were known to have been actively involved in important historical moments in the development of food systems governance initiatives in Canada. The sample population was intended to include a diverse representation across geographies, scales of work, and organizational types. Interviews averaged 60 minutes in length and used a semi-structured interview guide. They were transcribed verbatim and coded thematically using NVivo software. This paper focuses on the survey results and does not report in detail on the interviews, which we draw on to further explain and add perspectives on the major themes emerging from the survey.

Findings
This section identifies key findings from the national participatory food systems governance survey. It delineates CSO involvement in food systems governance broadly and national initiatives more specifically. In addition, we present respondent perspectives on the benefits and limitations of engagement in governance, and their current policy priorities.

Involvement in Food Systems Governance
The findings provided an overview of an emerging network of CSOs involved in food systems governance initiatives across Canada. Of the 69 respond-

ing CSOs, 42 organizations are located in Ontario (including three Indigenous, seven national, and two international), 16 in Quebec (including five national), three in Nova Scotia, two in Alberta, and one organization in each of the provinces of British Columbia, Saskatchewan, Manitoba, New Brunswick, and in Yukon, and in Northwest Territories. The survey asked respondents for details about the CSOs they represent and other organizations they collaborate with as part of their food systems governance work. Based on respondents ($N = 69$) and CSOs named by respondents ($N = 153$), the majority of CSOs involved in food systems governance came from the nonprofit sector (53%). Other categories included representatives from food policy councils (15%), small business and agricultural associations (16%), research organizations (6%), Indigenous organizations (4%), and other professional associations (6%). The CSO representatives that responded focused their efforts evenly at the municipal/regional level (36%), the provincial/territorial level (35%), and the national level (26%), with far fewer focused at the international level (3%).

Over 90% of respondents indicated that they had been in frequent contact with other organizations in the nonprofit sector with respect to their food systems governance work. Responses regarding contact with various levels of government and the private sector varied widely. Over 70% of respondents stated that they "rarely" or "never" contacted institutions working at the global scale.

The survey also asked respondents about their primary areas of work. The most common areas identified included food systems (42%), agriculture (40%), community food access (40%), community development (36%), education (30%), health (25%), and research (23%). Far fewer respondents were involved with Indigenous-related initiatives (11%), fishing (4%), and labor (4%).

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[3] In the survey, we describe food systems governance as the "relationships, rules, practices, and structures through which power and control are exercised and decisions are made within food systems. Food systems governance goes beyond singular issues to engage with food as relational, that is, as an aspect of life that connects us deeply as individuals, communities, and cultures. This includes not only how food is produced/harvested, processed, distributed, and consumed but also urban-rural linkages, food security and nutrition, producer and harvester livelihoods, Indigenous self-determination, economic development, equity and social inclusion, and environmental and ecosystem services. This might involve working directly to change or create policies and decision-making structures, as well as educating or coordinating with others who are involved in governance-related initiatives in various sectors and/or fields."

Engagement with Food Systems Governance Initiatives

To understand the degree to which respondents had been involved in food systems governance initiatives, the survey asked respondents about their level of involvement in four previous major initiatives at the national scale in Canada: the PFC (1977–1980), the PFP (2008–2011), the visit by the UNSRRF (2012), and the consultations and other activities leading up to the 2019 FP4C. We selected these four initiatives, discussed previously, as they represent key moments of food system activism at the national level during which many organizations from across sectors came together to address food systems governance. These initiatives also gained significant media attention and direct support from food movement networks such as FSC/RAD. These events demonstrated that various food systems actors could work collaboratively to build capacity and create change in decision-making processes.

While 50% of respondents reported a significant level of participation in the most recent FP4C consultations and activities, far fewer had been involved in the previous initiatives. Only four respondents indicated involvement in the PFC, 13 respondents indicated active involvement in the

PFP, and 13 indicated active involvement in the UNSRRF visit to Canada. Of note, many respondents commented that their organizations did not exist at the time that the first three initiatives occurred (PFC, PFP, UNSRRF) and nearly 25% commented that they did not know what the PFC or the PFP initiatives were.

In addition to the past national initiatives, respondents offered 104 examples of other food systems governance initiatives they were engaged with across different scales, with relatively even distribution: 31 initiatives at the municipal level, 25 at the provincial level, 36 at the national level, and 12 at multiple scales (including initiatives named more than once). Table 1 gives an overview of some of the most prominent initiatives. We organized them into four categories based on the type and whether it was led by the government or CSOs.

Overall, the findings suggest that respondents interpreted food systems governance quite broadly. In some cases, respondents listed initiatives that could be seen as only tangentially related to policy making or traditional understandings of governance, such as education initiatives and convening networks. Similarly, many of the initiatives identified do not necessarily adopt a food systems approach, but rather advance specific areas or ele-

Table 1. Sample Initiatives Named by Respondents

Government-led Consultations	CSO-led Consultations	CSO-led Campaigns	Ongoing Initiatives and Collaborations (led by CSO)
• Organic Value Chain Roundtable • Seed Sector Roundtable • Food policy forums organized by municipal and provincial governments • Greenbelt Plan • Meat Industry Engagement Panel • Quebec Organic Policy • Safe Food for Canadians Act Consultations • Ontario Poverty Reduction Plan • Canada Food Guide • Procurement Policies • Ontario Food and Nutrition Strategy • Healthy Eating Strategy	• Local Food and Farm Coops regional roundtables • Inquiry on Genetically Modified Foods • Regional farmer's market policy	• Eat Think Vote (2015 national election campaign) • Vote ON Food (provincial and municipal election campaign) • Flocking Options Campaign (campaign to influence provincial poultry policy)	• Eastern Ontario First Nations Working Group • Coalition for Healthy School Food • Coalition to Ban Terminator Seeds in Canada • Municipal food policy groups • Food strategies and charters

ments of a food system. It is also worth noting that most governance initiatives listed fell into the category of government-led consultations, in which respondents had been solicited, directly or indirectly, for input for a particular policy or regulation at the state or peri-state level. This is consistent with observations that much existing food systems governance is led by state actors (Andrée et al., 2019).

Benefits and Limitations of CSO Engagement in Food Systems Governance

Beyond describing the nature of CSO engagement in food systems governance, the survey asked respondents to comment on benefits and limitations of increasing engagement in food systems governance activities at the national scale. We focused on national-level governance to get a sense of broader scale coalitions and efforts. Nearly all respondents (over 90%) believed CSOs should be more engaged in national-level food systems governance, but they also identified challenges to this work. Most respondents pointed to limited capacity and lack of meaningful opportunities for engagement in national-level policy processes as the crucial reasons for difficulty in engaging more deeply. One respondent noted that food systems governance and policy work is extremely complex, and thus time-consuming and resource-intensive. Respondents also noted limited CSO capacity to engage in governance-related work due to lack of explicit funding for this work. Others noted that CSOs often focus too closely on one issue, and therefore do not fully understand the broader issues and context well enough to adequately engage in governance. This is an important observation about food systems governance specifically, as it requires an understanding of the connections and relationships between actors, not just a single issue. One respondent pointed to the lack of coordination among organizations active on food issues, noting that CSOs that do get involved are often forced to act on their own with little support. Several respondents discussed how government decision making, especially national-level policy, is often heavily influenced by powerful corporate

lobbyists or dominated by those advocating for trade, making it very challenging for CSOs to engage in those conversations. One respondent noted that national-level governance spaces typically exclude regional-level CSOs, "donc nous devons nous battre pour y participer et y être invité [so we must fight to participate and be invited]." These sentiments are particularly interesting considering that the survey data highlights that CSOs seek to engage in food systems governance at multiple scales, not just the scale at which most of their work takes place.

Throughout the survey, in various ways, respondents described governance concerns as complex problems that require collective efforts to address across sectors. Specifically, several respondents noted that it is necessary to come to terms with Canada's settler–colonial history, to actively address the calls to action of the Truth and Reconciliation Commission[4] and work with Indigenous Peoples to achieve food sovereignty. Despite these challenges, respondents emphasized the creative and collaborative approach CSOs bring to food systems governance work, offering solutions rooted in on-the-ground experience that other actors or stakeholders may not possess. CSOs also drive change by building power in communities closest to the issues and working with local people and other organizations to create political will, clarity, and urgency for action at multiple scales. Perceiving CSOs to be rooted in place and in relationships with individuals and communities, numerous respondents commented that CSOs are uniquely positioned to bring the concerns of those most affected by the issues into policy realms, as many work closely with and/or serve individuals who do not typically have a voice in governance. One respondent noted, "We are frequently not supported to play this role, but it is an essential function in terms of capacity-building, convening, and working to generate creative solutions."

Policy Priorities

Finally, the survey provided insight into the policy priorities of respondents. From a list of 15 prominent policy areas, respondents identified the top

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[4] Details about the Truth and Reconciliation Commission can be found at https://www.trc.ca

three priorities with which their organization was most engaged. The most prominent policy areas (over 25%) included improving and strengthening healthy food access, Indigenous food systems, local food procurement, and natural resources and the environment. The next group of top priorities (20%–25%) included school food programs, anti-hunger/anti-poverty efforts, food production, and economic development. Notably, there was much less engagement (5%) in areas including food labor. (See Appendix A for a full list of the 15 policy areas.)

Looking more closely at the top policy priorities in relation to scale, the majority were at the municipal level (e.g., healthy food access) and at the provincial–territorial level (e.g., school food programs). As with other findings in the survey, some respondents commented that limited capacity and lack of meaningful opportunities for engagement made it difficult to participate beyond the municipal level.

Analyzing relationships between the identified policy priorities, we found indications of sectoral siloing. For example, none of the respondents who listed agriculture as one of their primary areas of work listed anti-hunger/anti-poverty activity or Indigenous food sovereignty as a policy priority. We also found that respondents who listed food systems as a primary area of organizational work proved much less likely on average to identify food labor and Indigenous food sovereignty as policy priorities.

Themes for Deeper Exploration and Future Research
The survey findings provide a valuable scan that serves as a springboard for further analysis of who is involved in food systems governance in Canada, what areas they focus their energies on, and what scales they work at. In this section, we reflect on the findings and draw on the interview data to help interpret the relevance of these results for our research participants—the civil society actors who regularly engage in governance processes. We also present this information with the hope that other researchers will continue to explore the food systems governance landscape more deeply, through interviews and case studies with relevant actors.

Reflecting on the survey results, the scholarly literature, and discussions with our research team and community partners, we identified five key gaps in food systems governance that require additional focus and study: (1) describing the myriad meanings of participatory food systems governance; (2) learning from food movement histories; (3) deepening meaningful Indigenous–settler relationships; (4) addressing food systems labor issues; (5) considering participatory food systems governance in the COVID-19 context. Some of these themes emerged as notable absences in the survey data (e.g., descriptions of food systems governance, labor, food movement histories), while others were explicitly named by respondents as important areas in need of further attention (e.g., Indigenous–settler relationships). Our interviews took place between the first and fourth waves of the COVID-19 pandemic in Canada, and the related public health measures, restrictions, and social and economic impacts on food systems generated an additional theme for further research. This section explores these five themes, drawing from quotes from our interview data to illustrate their importance to respondents and CSO engagement in food systems governance more broadly. We acknowledge that these themes are not exhaustive but share them to contribute to the broader conversations surrounding food systems governance.

(1) Describing the Meaning of Participatory Food Systems Governance
The survey results offer a snapshot of civil society perspectives on food systems governance in Canada. Upon reflection, they uncovered significantly more engagement in food systems governance than we had originally expected. Perhaps relatedly, we also encountered quite a range of perspectives on what food systems governance means to our informants, in addition to what deep participation in this work *could* and/or *should* look like.

In the interviews, we provided respondents with a broad definition of participatory food systems governance to consider (see footnote 3). This definition implies participatory approaches to governance that seek to include a diversity of voices in decision-making processes, particularly those directly implicated in and affected by the outcome.

In practice, participatory food systems governance includes various forms of multistakeholder governance, co-governance, and self-governance models (Clark et al., 2021). After offering this definition, we asked our informants what participatory food systems governance meant for them. Reflecting on the responses, we recognize that we will need to keep refining our own understandings, and not assume that "participatory" is how most CSOs experience the food systems governance processes they seek to influence or build.

For example, a respondent from an organization that works on farm labor issues in Canada noted that food systems governance, as they experience it, tends to be fairly one-sided. It is not a shared endeavour, with opportunities for broad engagement by all relevant actors: "Food systems governance is … all tied to the interests of growers. It's all about the produce being more important than the people behind it than workers behind it, because you know the people that are important are. … Canadian farming families." Consistent with this perspective that decisions tend to be influenced disproportionately by some actors more than others, a representative of a farmer organization noted that, in their work, food systems governance implies doing a "power analysis of food policies" to determine "who has power and how that power is wielded, distributed and so on" and "whose interests are they serving?"

In contrast to these perspectives, another interviewee emphasized that food systems governance is about the "balancing act" and integrative "thread" among various interests and priorities in policymaking:

> Where do we have policy? We have an environmental policy that's to protect the environment, we have a food safety policy to protect the health of humans. We have labor policy to make sure that we're not abusing the people who are working. So governance is that thread between these three things, that are central to how we can thrive as a society. That thread can improve the way things are, or it could stifle the way things are. If it's too much in favor of business, then the environment and social aspects get missed. If it's too much on the

environment, then it becomes a barrier to growth of the businesses. So really, governance, if you want to talk about governance, it's a balancing act. What's good and what's right and what's going to work to help make everyone move forward.

These quotes illustrate that understandings of food systems governance and what participation in that process could mean depend on positionality, as well as organizational values and priorities. In the next phase of our research, we move away from predetermining our own definition of participatory food systems governance to unpack the multiple meaning(s) of participatory food systems governance for various types of CSOs in Canada. However, while many CSOs state that collaborative governance is a goal, the survey found that most respondents had been involved primarily in consultations rather than decision making. This begs the question of how "participatory" food systems governance processes—as defined by the actors involved in them—work in practice. Not every organization and its staff have the skillset, resources, and capacity to sit at governance tables, especially at the national level. Addressing these gaps is essential for food systems governance to be accountable to more diverse constituencies and their priorities, and to ensure that those who wish to engage in participatory governance have the opportunity to do so.

Future research will explore how participants understand and engage in a spectrum of food systems governance initiatives, with special attention to potential trade-offs, limitations, and paradoxes between governance goals and the political, economic, and environmental circumstances associated with various types of engagement. In the next phase of our research, we will undertake case studies of specific collaborative governance processes. Ultimately, our research aims to cultivate and amplify participatory forms of food systems governance by exploring the lessons learned from those actors who are actively involved in them.

(2) Learning from Food Movement Histories
While many CSOs claim to address food systems transformation through a variety of initiatives,

most focus on specific issues in particular places. However, there have been key moments when civil society actors have come together to scale-up their place-based work to address policy and governance across sectors. While a few of our informants carry a long institutional memory that goes back to the PFC in the 1970s, we found that overall, there was little in the way of sustained engagement in food systems governance over time. Many respondents represented organizations that have only been established in the past five to ten years and had not been involved in major national-level initiatives. As many CSOs have relatively high levels of staff turnover, the relative newness of many CSO staffers is reflected in the interview data. For example, an interviewee representing one of the newer organizations in Quebec told us:

> It [the organization] was founded in 2013. It's certain that during the first few years, we were more at the level of making very definite demands in relation to specific needs and issues. … Now, we have taken the time to see how things are going, and where the knots that prevent us from taking more space are. … Now … we are more in the process of making proposals on governance and on more macro aspects.

This quote resonates closely with the experiences of proponents from many of the organizations established in the last decade. It reveals how some organizations getting involved in specific food systems issues (e.g., providing emergency food) begin to think about the issues in a more systematic way and start getting involved in broader governance issues. These sentiments also show the importance of historical insight which representatives of such organizations may not always have. Overall, this finding affirms the need to document the history and achievements of CSOs active in food systems work so that the latest generation of actors can learn from those who came before.

Moving forward, our research seeks to develop a more comprehensive understanding of the historical engagement of CSOs in food systems governance at the national level. While there is a long history of CSO engagement in food systems gov-

ernance, there is a lack of continuity of involvement, so that many respondents were unaware of this history. There are important lessons to be learned from previous pivotal moments that can help to inform, and hopefully strengthen, emerging models of participatory food systems governance. Future research could explore the ways that actors advancing place-based initiatives have worked collectively to engage in and advocate for participatory food systems governance, historically and today.

(3) Deepening Meaningful Indigenous–Settler Relationships

Greater emphasis should be placed on meaningful Indigenous–settler relationships as an important part of collaborative food systems governance that speaks to the treaty context and ongoing reality of settler colonialism in Canada (Kepkiewicz & Rotz, 2018; Manuel & Derrickson, 2021). To put it bluntly, working on food systems issues in Canada demands confronting and addressing issues of settler colonialism and Indigenous self-determination. Despite this acknowledgment and interest, the survey found only limited action in this regard. However, several respondents identified themselves as working collaboratively with Indigenous and settler CSOs and communities on food systems governance initiatives. As an example, one respondent noted that their CSO recently started an "Indigenous advisory circle" to directly advise the executive director "a few times a year": "That space is meant to be like, are we on the right track? What are we missing? What do we need to be doing?" This advisory circle led to the hiring of a staff position to support Indigenous-led food initiatives. The organization has also started to do more "public-facing statements and things around solidarity with Indigenous land defenders in our area."

Another interviewee spoke about how their organization was approached by local First Nations for some training, only to discover that these communities were already undertaking a variety of food initiatives. This encounter led to a new inspiring partnership:

> So, then my mind completely switched. Then we'd say, how do you do, we want to learn

from you, and by the way, we'd like to share the expertise we acquired over time. And what really was a winner with Indigenous communities was the right to food because they are very sensitive to that, the values that we [i.e., our organization] carry, democracy, equity, respect, these are values that are very dear to them.

As another example of recent actions taken, a respondent from an organization that primarily works on international food issues noted:

We've been doing a lot of thinking and work in terms of what is our role as social justice activists here in Canada? What can we do and what's an appropriate role for us? … We have an Indigenous person that's on our board. We'd like to recruit another one. That's in our plans. We've created our own Indigenous Rights Action Plan after the huge process of reconciliation [the TRC]. So, at the end you've got all these recommendations, but often they're directed to the government, but they don't tell Canadian citizens what we can do. So, we read the report and came up with our own list of actions that we want to do as [an organization] as a way to advance reconciliation.

Our future research will continue to explore what CSOs are doing to address the Canadian treaty context and reconciliation, including the barriers and challenges of those settler organizations struggling with and/or not currently engaging with Indigenous-led groups. We will also explore promising examples of settler allies working collaboratively with Indigenous peoples on governance within and beyond food systems. As we conduct case studies, we will also investigate opportunities for Indigenous food sovereignty in settler states as well as models of Indigenous governance. There is much to be learned about different perspectives and approaches toward governance that could be shared and possibly adapted.

(4) Addressing Food Systems Labor Issues

Labor concerns are central to food systems, yet the survey and interviews suggest they are relatively absent in food systems governance spaces and the work of food systems CSOs in general. For a few of the respondents, labor justice was salient. For example, a representative of an organization that seeks to get more fresh food into hospitals commented:

We are not going to find that a solution is marvelous if it is cost-efficient but exploits people. And that's an element, and then a brake that will add to our many, many functions and actions to transform the system. But I have a problem with the fact that the only way to make hospital production profitable is to exploit people in a vegetable peeling factory. So, we never exclude this dimension [of labor justice].

We heard that many organizations want to do more on this front. A representative of a farm organization said, "The last ten years has really shifted the labor discussion from moving from unpaid internships to paying the employees [on farms] …" They also noted the growing interest in critical discussion of the role of migrant workers on their members' farms:

We haven't been very involved in discussions around migrant workers and seasonal workers. … That came up at our conference this year. We did a panel on racial justice and agriculture, and how can you talk about racial justice and agriculture, without talking about all the migrant workers who grow most of our food? … [But] it's still a question for me about how can [our organization] engage in that space. … It is something that we should be more intentionally a part of.

Similarly, a respondent from an organization that promotes child nutrition noted that these are issues they want to engage in more actively:

I think it's time for us to address [migrant labor issues] in a more systematic way. But it raises, of course, the question of the price of food and is very complicated, as we build alliances with the farm organizations, because of

all their issues around migrant workers. … So again, that would be a place where I might have a view that I'd like us to do this work, but I don't think there's consensus [among our] members that this is our issue, yet.

As our research moves forward, we will continue to probe the intersection between food and labor issues. Future research could explore how governance issues related to labor might be addressed in food circles, and conversely, how food systems issues might be addressed in labor circles (e.g., migrant labor governance discussions, collective bargaining, the minimum wage). Currently, it appears that governance questions about labor across the food chain are predominantly taken up with labor governance more broadly, as opposed to food systems governance. There are many labor actors involved in labor governance spaces that include food workers/labor; however, few of them responded to our survey.

(5) Considering Participatory Food Systems Governance in the Context of the COVID-19 Pandemic

As noted above, the survey was completed during the COVID-19 pandemic, and our interviews took place between the first and fourth wave of cases in Canada in 2021. This timing has led us to examine how the COVID-19 pandemic impacted food systems governance, and the lessons we might obtain about food systems governance from this global challenge.

The onset of the pandemic in early 2020 high-lighted the vulnerabilization[5] of essential workers at multiple points across the food chain (e.g., farm and retail workers) as well as the disproportionate impact on individuals and communities already in poverty. For example, while communities across the country already faced major food insecurity (Statistics Canada, 2020), this precarity increased significantly among those facing the highest levels of inequity. Moreover, fresh, and culturally appropriate foods became increasingly challenging for many to access (Klassen & Murphy, 2020). This

brought to the fore the need for greater action for food systems governance. Community-based organizations responded quickly to augment local productive capacity (e.g., offering access to land, soil, and seeds to vulnerable groups; marshaling private food processing capacity to provide meals vis-à-vis the charitable sector) and to lobby municipal and provincial governments to maintain critical aspects of community-based food systems (e.g., ensuring farmers' markets and community gardens were deemed essential and could remain open, with enforced physical distancing and appropriate safety protocols).

Organizations also seemed to be working together in new ways through the crisis. One interviewee noted, "as a result of COVID a kind of cooperative came together quite ad hoc…trying to show how food could be the answer for resilience and coming back from COVID." An important question is how and why forms of cooperation evolved, and if they will continue to grow as we move through new phases of the pandemic, and beyond. The pandemic has also led to higher level governance conversations. One respondent noted,

> Now, with all the discussions around recovery and resiliency, it seems that everyone is ready to make big changes. There's kind of a need to set up new ideas, new systems, and everything and so we are very requested, we participate a lot in those discussions.

The COVID-19 pandemic has demonstrated the acute need for the voices of those most vulnerabilized to be better represented in food systems governance decisions (e.g., migrant farm and factory workers, retail employees, individuals living in poverty, Black and Indigenous people who are disproportionately impacted by food insecurity). Addressing these issues now and integrating lessons from the pandemic might help to mitigate the next one. As one interviewee noted,

> A lot of communities have had food security as a major priority issue, and have had a lot of

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[5] Although cumbersome, this term has become used in some activist communities. It aims to identify the fact that people/communities are not inherently vulnerable, but rather, are *made* vulnerable by dominant social structures.

work underway, but I think just going through this experience [of the COVID-19 pandemic] has made it much more front of mind for people and I think a lot of the projects and that might have been initiated over the short term as COVID response, may become more important.

Our future research aims to unpack these experiences within interviews and case studies—to broadly consider how food governance models were relevant in the pandemic and to explore specific possibilities for participatory food systems governance to mitigate ongoing inequities in food systems and create greater resilience to potential stressors through engagement.

To address some of the areas for further research identified in this section, our research team is now methodically coding the interviews we undertook from 2020 to 2022. In addition, we are planning a series of case studies of promising participatory food governance examples. We aim to bring forward insights from each example, and to determine the governance mechanisms and relationships that allow CSOs to break down the silos that treat food systems issues as isolated from one another. Our analysis will also consider overarching issues of power (e.g., who is included/excluded, why, and to what effect?) and privilege (e.g., race, class, gender, settler), and advance both critiques and positive examples with respect to innovative models. Our research will also consider what resources and supports must be put in place to ensure participation in food systems governance by CSO representatives.

Conclusions

Drawing primarily on national survey results, we delineated CSO involvement in food systems governance within Canada. We outlined the benefits and limitations of engagement from the perspective of these CSOs, and identified their policy priorities. We also pointed to the roles CSOs play in ground-truthing, driving change, imparting the urgent nature of the challenges, bridging policy and people, including vulnerabilized people and communities, collaborating across sectors, and advocating for systems change.

Based on the survey results, the scholarly literature, and reflections from the research team and our community partners, we suggested five themes that deserve greater attention and illustrated why these areas of focus matter to CSOs. First, we explored the meanings, possibilities, and limitations of participatory food systems governance from the perspective of food systems actors who engage in these governance experiments. As researchers, we may have a theoretical sense of the possibilities and value of such processes, but what this looks like on the ground can be quite different. Second, we noted the value of documenting historical engagements to raise awareness of how food systems and CSOs have evolved. Such work could inform the present-day leaders of Canadian food movements, who may not know about activities from a decade and more ago. Third, we identified the need to investigate what CSOs are doing to deepen meaningful Indigenous–settler relationships in Canada's treaty context and reconciliation efforts. Fourth, we suggested the need to focus attention on the nexus between food and labor issues, and the extent to which organizations working in these spaces are linking these issues. Fifth, we encouraged deeper examination of how the COVID-19 pandemic has shaped food systems governance, including how more participatory and collaborative approaches mitigate ongoing inequities in food systems and create greater resilience. While these findings have particular relevance to Canada, insights from this research might also contribute to wider discussions on public participation in food systems governance at regional, national, international, and global levels.

As a preliminary study, the data collected in the surveys and interviews are an important step in understanding the ways that CSOs are engaged in food systems governance across Canada. As most of the respondents were located in Ontario and Quebec, the data likely presented a somewhat narrow picture of the current governance landscape. Further research will focus more attention on CSOs in other provinces and territories.

As we continue this research and share these stories, we should also seek to develop a typology of the different civil society actors involved in food systems work. Clark et al. (2021) refer to food

movements as the "networks of people, groups, and organizations that are challenging industrial food systems by experimenting with a variety of alternative ways of producing, harvesting, foraging, processing, distributing, consuming, and, ultimately, governing food" (p. 175). These movements, and the diverse initiatives they spearhead, are associated with a range of labels, including fair trade, civic agriculture, food justice, food sovereignty, agroecology, slow food, and community food security. Given this broad definition of food movements, it would be tempting to believe that all the CSOs we interviewed are part of such movements. While it may be true that most respondents align with goals such as social justice, sustainability, and healthy food, they do not all envision the same pathways for achieving those goals; ultimately, some are more comfortable with making small changes to the industrial food system while others aim to transform it completely.

Our research brings to the fore a diverse constituency of different kinds of organizations associated with food systems work, some that might ascribe to the food movement label and others that might not. Moreover, it is important to critically interrogate the role of CSOs as vehicles for participation with social movement groups that have less formalized structures and access to resources While CSOs can enhance the engagement of diverse communities in food systems governance efforts, it is not clear that they adequately facilitate involvement of those most affected by current policies and regulations, nor that they have the will or ability to advocate for more radical changes. Moving forward, we will continue to unpack these distinctions and the perceptions of participatory food systems governance held by representatives of the different types of organizations involved in this work.

As food systems research moves forward on these topics and others, it will be important to develop an integrated understanding of how issues such as the environment and economy and elements of systems such as production and consumption are interconnected and mutually constitutive. This might involve working directly to change or create policies and decision-making structures, as well as capacity-building activities for those involved in, or affected by, governance initiatives. Ultimately, food systems governance must go beyond singular issues to engage with food not only in the material sense, but also as an essential element of all life—connecting us as individuals, communities, and cultures.

Acknowledgments

References

Ad Hoc Working Group on Food Policy Governance. (2017). *The case for a national food policy council.* Arrell Food Institute, Canadian Federation of Agriculture, Food Secure Canada, Maple Leaf Foods, McConnell Foundation. https://foodsecurecanada.org/sites/foodsecurecanada.org/files/attached_files/the_case_for_a_national_food_policy_council_final.pdf

Agriculture and Agri-Food Canada (AAFC). (2021). *The Canadian Food Policy Advisory Council.* https://agriculture.canada.ca/en/about-our-department/key-departmental-initiatives/food-policy/canadian-food-policy-advisory-council

Agroecology Research-Action Collective [ARC]. 2021. *Scientists boycott the 2021 UN food systems summit.* https://agroecologyresearchaction.org/scientists-boycott-the-2021-unfood-systems-summit/

Alkon, A. H., & Agyeman, J. (Eds.). (2011). *Cultivating food justice: Race, class, and sustainability*. MIT Press. https://doi.org/10.7551/mitpress/8922.001.0001

Andrée, P., Ayres, J., Bosia, M. J., & Massicotte, M.-J. (Eds.). (2014). *Globalization and food sovereignty: Global and local change in the new politics of food.* University of Toronto Press. https://doi.org/10.3138/9781442696860

Andrée, P., Ballamingie, P., & Coulas, M. (2021). Integrative governance for ecological public health: An analysis of 'Food Policy for Canada' (2015-2019). *Canadian Food Studies/La Revue canadienne des études sur l'alimentation*, *8*(2), 189–226. https://doi.org/10.15353/cfs-rcea.v8i2.450

Andrée, P., Clark, J. K., Levkoe, C. Z., & Lowitt, K. (Eds.) (2019). *Civil society and social movements in food system governance.* Routledge. https://doi.org/10.4324/9780429503597

Arthur, H., Sanderson, D., Tranter, P., & Thornton, A. (2022). A review of theoretical frameworks of food system governance, and the search for food system sustainability. *Agroecology and Sustainable Food Systems, 46*(8), 1277–1300. https://doi.org/10.1080/21683565.2022.2104422

Bassarab, K., Clark, J. K., Santo, R., & Palmer, A. (2019). Finding our way to food democracy: Lessons from US food policy council governance. *Politics and Governance*, *7*(4), 32–47. https://doi.org/10.17645/pag.v7i4.2092

Beaulieu, M. (2015). *Demographic changes in Canadian agriculture.* Statistics Canada/ Statistique Canada. http://www.statcan.gc.ca/pub/96-325-x/2014001/article/11905-eng.htm

Blay-Palmer, A. (2009). The Canadian pioneer: The genesis of urban food policy in Toronto. *International Planning Studies*, *14*(4), 401-416. https://doi.org/10.1080/13563471003642837

Blay-Palmer, A. (Ed.). (2016). *Imagining sustainable food systems: Theory and practice.* Routledge. https://doi.org/10.4324/9781315587905

Burnett, K. (2014). Trouble in the fields: Fair Trade and Food Sovereignty responses to governance opportunities after the food crisis. *Geopolitics*, *19*(2), 351–376. https://doi.org/10.1080/14650045.2012.752356

Cadieux, K. V., & Slocum, R. (2015). What does it mean to do food justice? *Journal of Political Ecology*, *22*(1), 1–26. https://doi.org/10.2458/v22i1.21076

Canfield, M., Anderson, M. D. & McMichael, P. (2021). UN Food Systems Summit 2021: Dismantling democracy and resetting corporate control of food systems. *Frontiers in Sustainable Food Systems, 5*, Article 661552. https://doi.org/10.3389/fsufs.2021.661552

Canfield, M. C., Duncan, J., & Claeys, P. (2021). Reconfiguring food systems governance: The UNFSS and the battle over authority and legitimacy. *Development*, *64*(3), 181–191. https://doi.org/10.1057/s41301-021-00312-1

Chandrasekaran, K., Guttal, S., Kumar, M., Langner, L., & Manahan, M. (2021). *Exposing corporate capture of the UNFSS through multistakeholderism.* Food Systems 4 People. https://www.foodsystems4people.org/wp-content/uploads/2021/09/UNFSSreport2021.pdf

Civil Society and Indigenous Peoples Mechanism [CSM]. (2021). *What is wrong with the Food Systems Summit (FSS)?* https://www.csm4cfs.org/wp-content/uploads/2021/07/Common-analysis-EN.pdf

Clapp, J. (2020). *Food* (3rd ed.). Polity Press. https://www.wiley.com/en-us/Food%2C+3rd+Edition-p-9781509541782

Clapp, J. (2021). The problem with growing corporate concentration and power in the global food system. *Nature Food*, *2*(6), 404–408. https://doi.org/10.1038/s43016-021-00297-7

Clapp, J., Noyes, I., & Grant, Z. (2021). The Food Systems Summit's failure to address corporate power. *Development*, *64*(3–4), 192–198. https://doi.org/10.1057/s41301-021-00303-2

Clark, J. K., Lowitt, K., Levkoe, C. Z., & Andrée, P. (2021). The power to convene: Making sense of the power of food movement organizations in governance processes in the Global North. *Agriculture and Human Values*, *38*(1), 175–191. https://doi.org/10.1007/s10460-020-10146-1

Constance, D. H., Renard, M. C., & Rivera-Ferre, M. G. (Eds.) (2014). *Alternative agrifood movements: Patterns of convergence and divergence.* Emerald Group. https://doi.org/10.1108/S1057-192220140000021018

Council of Canadian Academies. (2014). *Aboriginal food security in Northern Canada: An assessment of the state of knowledge.* The Expert Panel on the State of Knowledge of Food Security in Northern Canada. https://cca-reports.ca/reports/aboriginal-food-security-in-northern-canada-an-assessment-of-the-state-of-knowledge/

Desmarais, A., Claeys, P., & Trauger, A. (Eds.) (2017). *Public policies for food sovereignty: Social movements and the state.* Routledge. https://www.routledge.com/Public-Policies-for-Food-Sovereignty-Social-Movements-and-the-State/Desmarais-Claeys-Trauger/p/book/9781138240964

Duncan, J., & Claeys, P. (2018). Politicizing food security governance through participation: Opportunities and opposition. *Food Security*, *10*(6), 1411–1424. https://doi.org/10.1007/s12571-018-0852-x

Food Communities Network/Réseau Communautés Nourricières [FCN-RCN]. (2021a). *Food Policy Groups Directory.*
https://fcn-rcn.ca/food-policy-groups-directory

Food Communities Network/Réseau Communautés Nourricières [FCN-RCN]. (2021b). *Welcome to the Food Communities Network.* https://fcn-rcn.ca

Food Secure Canada/Réseau pour une alimentation durable [FSC/RAD]. (2018). *Who we are.*
https://foodsecurecanada.org/who-we-are

Food Systems 4 People. (2021). *No to corporate food systems! Yes to food sovereignty!* https://www.foodsystems4people.org

Goodman, D., DuPuis, E. M., & Goodman, M. K. (2012). *Alternative food networks: Knowledge, practice, and politics.*
Routledge. https://doi.org/10.4324/9780203804520

Gupta, C., Campbell, D., Munden-Dixon, K., Sowerwine, J., Capps, S., Feenstra, G., & Kim, J. V. S. (2018). Food policy councils and local governments: Creating effective collaboration for food systems change. *Journal of Agriculture, Food Systems, and Community Development*, *8*(B, Suppl. 2), 11–28. https://doi.org/10.5304/jafscd.2018.08B.006

Hammelman, C., Levkoe, C. Z., Agyeman, J., Kharod, S., Faus, A. M., Munoz, E., Olivia, J., & Wilson, A. (2020). Integrated food systems governance: Scaling equitable and transformative food initiatives through scholar-activist engagement. *Journal of Agriculture, Food Systems, and Community Development*, *9*(2), 71–86.
https://doi.org/10.5304/jafscd.2020.092.003

Ilieva, R. T. (2016). *Urban food planning: Seeds of transition in the Global North.* Routledge.
https://doi.org/10.4324/9781315658650

Institute for Health Metrics and Evaluation. (2010). *Global burden of disease study profile: Canada.*
https://www.healthdata.org/sites/default/files/files/country_profiles/GBD/ihme_gbd_country_report_canada.pdf

International Panel of Experts on Sustainable Food Systems [IPES-Food]. (2016). *From uniformity to diversity: A paradigm shift from industrial agriculture to diversified agroecological systems* [Report No. 2].
https://www.ipes-food.org/_img/upload/files/UniformityToDiversity_FULL.pdf

Kennedy, A., & Liljeblad, J. (Eds.). (2016). *Food systems governance: Challenges for justice, equality and human rights.* Routledge.
https://www.routledge.com/Public-Policies-for-Food-Sovereignty-Social-Movements-and-the-State/Desmarais-Claeys-Trauger/p/book/9781138240964

Kepkiewicz, L., & Rotz, S. (2018). Toward anti-colonial food policy in Canada? (Im)possibilities within the settler state. *Canadian Food Studies/La Revue canadienne des études sur l'alimentation*, *5*(2), 13–24.
https://doi.org/10.15353/cfs-rcea.v5i2.202

Knezevic, I., Blay-Palmer, A., Levkoe, C. Z., Mount, P., & Nelson, E. (Eds.). (2017). *Nourishing communities: From fractured food systems to transformative pathways.* Springer. https://doi.org/10.1007/978-3-319-57000-6

Koc, M., & MacRae, R. (Eds.). (2001). *Working together: Civil society working for food security in Canada.* Media Studies Working Group. https://idl-bnc-idrc.dspacedirect.org/bitstream/handle/10625/33686/118217.pdf

Koc, M., MacRae, R., Desjardins, E., & Roberts, W. (2008). Getting civil about food: The interactions between civil society and the state to advance sustainable food systems in Canada. *Journal of Hunger & Environmental Nutrition*, *3*(2–3), 122–144. https://doi.org/10.1080/19320240802243175

Kooiman, J. (2003). *Governing as governance.* Sage. https://doi.org/10.4135/9781446215012

Kugelberg, S., Bartolini, F., Kanter, D. R., Milford, A. B., Pira, K., Sanz-Cobena, A., & Leip. A. (2021). Implications of a food system approach for policy agenda-setting design. *Global Food Security*, *28*, Article 100451.
https://doi.org/10.1016/j.gfs.2020.100451

Lang, T, Barling, D., & Caraher, M. (2009). *Food policy: Integrating health, environment and society.* Oxford University Press.
https://doi.org/10.1093/acprof:oso/9780198567882.001.0001

Levkoe, C. Z. (2014). The food movement in Canada: A social movement network perspective. *Journal of Peasant Studies*, *41*(3), 385–403. https://doi.org/10.1080/03066150.2014.910766

Levkoe, C. Z., Schiff, R., Arnold, K., Wilkinson, A., & Kerk, K. (2021). Mapping food policy groups: Understanding cross-sectoral network building through social network analysis. *Canadian Food Studies/La Revue canadienne des études sur l'alimentation*, *8*(2), 48–79. https://doi.org/10.15353/cfs-rcea.v8i2.443

Levkoe, C. Z., & Sheedy, A. (2017). A people-centred approach to food policy making: Lessons from Canada's People's Food Policy project. *Journal of Hunger & Environmental Nutrition, 14*(3), 318–338. https://doi.org/10.1080/19320248.2017.1407724

Levkoe, C. Z., & Wilson, A. (2019). Policy engagement as prefiguration: Experiments in food policy governance through the national food policy dialogue in Canada. In P. Andrée, J. K. Clark, C. Z. Levkoe, & K. Lowitt. (Eds.), *Civil society and social movements in food system governance* (pp. 101-123). Routledge. https://doi.org/10.4324/9780429503597-6

Manuel, A., & Derrickson, R. M. (2021). *Unsettling Canada: A national wake-up call.* Between the Lines. https://unsettlingcanada.com/

Martin, S. J., & Andrée, P. (2017). Putting food sovereignty to work: Civil society governmentalities and Canada's People's Food Policy Project (2008–2011). *Journal of Civil Society*, *13*(4), 374–391. https://doi.org/10.1080/17448689.2017.1355034

Mendes, W. (2008). Implementing social and environmental policies in cities: The case of food policy in Vancouver, Canada. *International Journal of Urban and Regional Research*, *32*(4), 942–967. https://doi.org/10.1111/j.1468-2427.2008.00814.x

Miller, S. (2008). *Edible action: Food activism and alternative economics*. Fernwood. https://fernwoodpublishing.ca/book/edible-action

Miller, S. (2016) *Belongings: The fight for land and food*. Fernwood. https://fernwoodpublishing.ca/book/belongings

Minnery, J. (2007). Stars and their supporting cast: State, market and community as actors in urban governance. *Urban Policy and Research*, *25*(3), 325–345. https://doi.org/10.1080/08111140701540745

Montenegro de Wit, M., Canfield, M., Iles, A., Anderson, M., McKeon, N., Guttal, S., Gemmill-Herren, B., Duncan, J., van der Ploeg, J. D., & Prato, S. (2021). Resetting power in global food governance: The UN Food Systems Summit. *Development*, *64*(3–4), 153–161. https://doi.org/10.1057/s41301-021-00316-x

Moragues-Faus, A. (2020). Towards a critical governance framework: Unveiling the political and justice dimensions of urban food partnerships. *The Geographical Journal*, *186*(1), 73–86. https://doi.org/10.1111/geoj.12325

People's Food Commission [PFC]. (1980). *The land of milk and money: The national report of the People's Food Commission*. Between the Lines. https://foodsecurecanada.org/sites/foodsecurecanada.org/files/The%20Land%20of%20Milk%20and%20Money.pdf

People's Food Policy [PFP]. (2011). *Resetting the table: A people's food policy for Canada.* Food Secure Canada. https://foodsecurecanada.org/sites/foodsecurecanada.org/files/fsc-resetting2012-8half11-lowres-en.pdf

Renting, H., Schermer, M., & Rossi, A. (2012). Building food democracy: Exploring civic food networks and newly emerging forms of food citizenship. *International Journal of Sociology of Agriculture and Food*, *19*(3), 289–307. https://doi.org/10.48416/ijsaf.v19i3.206

Schiff, R. (2008). The role of food policy councils in developing sustainable food systems. *Journal of Hunger & Environmental Nutrition*, *3*(2–3), 206–228. https://doi.org/10.1080/19320240802244017

Schiff, R., Levkoe, C. Z., & Wilkinson, A. (2022). Food policy councils: A 20-year scoping review (1999–2019). *Frontiers in Sustainable Food Systems, 6*, Article 868995. https://doi.org/10.3389/fsufs.2022.868995

Schnitter, R., & Berry, P. (2019). The climate change, food security and human health nexus in Canada: A framework to protect population health. *International Journal of Environmental Research and Public Health*, *16*(14), Article 2531. https://doi.org/10.3390/ijerph16142531

Statistics Canada/Statistique Canada. (2020). *Food insecurity during the COVID-19 pandemic, May 2020.* https://www150.statcan.gc.ca/n1/pub/45-28-0001/2020001/article/00039-eng.htm

Tansey, G., & Worsley, A. (1995). *The food system: A guide*. Routledge. https://doi.org/10.4324/9780203380932

Tarasuk, V., Mitchell, A., & Dachner, N. (2013). *Household food insecurity in Canada: 2011*. PROOF, Canadian Institutes for Health Research. https://proof.utoronto.ca/resources/proof-annual-reports/annual-report/

United Nations General Assembly Human Rights Council, 22nd Session. (2012). Report of *Special Rapporteur on the right to food, Olivier De Schutter. Addendum: Mission to Canada.* https://www.ohchr.org/Documents/HRBodies/HRCouncil/RegularSession/Session22/AHRC2250Add.1_English.PDF

Vermeulen, S. J., Campbell, B. M., & Ingram, J. S. (2012). Climate change and food systems. *Annual Review of Environment and Resources*, *37*, 195–222. https://doi.org/10.1146/annurev-environ-020411-130608

Wittman, H., Desmarais, A. A., & Wiebe, N. (Eds.) (2011). *Food sovereignty in Canada: Creating just and sustainable food systems.* Fernwood. https://fernwoodpublishing.ca/book/food-sovereignty-in-canada

Appendix A. List and Description of Policy Priorities

1. Food procurement (e.g., municipality, institutional or hospital)

2. Healthy food access (e.g., healthy food financing, food and nutrition incentives at farmers markets, soda tax, school wellness policies)

3. Food waste reduction and recovery (e.g., tax incentive for food donations, date labeling, food waste recycling)

4. Anti-hunger/anti-poverty (e.g., outreach and enrollment in social assistance programs, food banks, summer feeding programs, senior hunger, poverty reduction)

5. Land use planning (e.g., urban agriculture zoning, comprehensive planning, farmland protection)

6. Food production (e.g., farming, ranching, aquaculture, gardening, beekeeping)

7. Local food processing (e.g., cottage food industry, community kitchens, local slaughter)

8. Food labor (e.g., minimum wage standards, sick leave, working conditions)

9. Natural resources and environment (e.g., water, climate change, soil quality, pesticide regulation, seed and breed protection and development)

10. Economic development (e.g., branding initiatives, market development, food hubs, food business promotion, food and farm financing)

11. Transportation (e.g., access to healthy food retail, last-mile food distribution from wholesale suppliers to consumer food retailers)

12. School food programs

13. Strengthening Indigenous food systems

14. Fair Trade

15. Policy priorities not determined (only select if none of the above options selected)

Applying emerging core competencies to extension training courses for local food system practitioners

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Abstract
In 2019, a national group of local food system educators and practitioners identified over 140 foundational core competencies critical to local food system development work and began to identify existing educational resources related to these competencies. This process resulted in a new aggregated resource: the Local Food System Practitioner and Educational Resource Database. Included in this database is a core competency matrix that distinguishes three levels of learning

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for each competency so that practitioners can identify learning opportunities most closely tailored to their educational needs. It also serves as a framework and competency matrix for educators to use to help assess and communicate the learning outcomes of their curricula. This framework is the overall concept for understanding the competencies, and the matrix is the tool developed to assess and evaluate the level at which an educational resource teaches a competency. In this article we apply the newly create core competency matrix to two existing local food system development courses. We share lessons learned from applying the matrix and insights gained from comparing two introductory level courses. We conclude with recommendations for improving the resource database and matrix to a more user-friendly model for educators and local food system practitioners.

Keywords
Food Systems, Competency Framework, Professional Development, Curricula Providers, Professional Training

Introduction
Over the last decade, local food systems have spurred interest in stimulating community development and local economies by contributing to local farm viability, promoting healthy eating habits among consumers, and addressing community food security and resilience (Schipanski et al., 2016); this interest grew dramatically throughout the COVID-19 pandemic. Local food practitioners identified training and education as needs to professionalize the field based on the results of two national surveys from the North American Food Systems Network (NAFSN), which were conducted in 2012 and 2019 (Hilchey et al., 2021). Meanwhile, additional groups and organizations, such as Cooperative Extension, have developed formal training opportunities to educate local food system practitioners on the interdisciplinary aspects of food system development, approaches to working in local food systems, and related research in this field, based on individual needs assessments

and curriculum development processes (Dunning et al., 2012; Lelekacs et al., 2016).

Due to the recognized need for training opportunities, in 2019 the U.S. Department of Agriculture Agricultural Marketing Service (USDA AMS) division supported a national Food System Core Competency project that included a group of national partners consisting of nongovernmental organizations, Extension professionals, universities, and food system practitioners, to identify a foundational set of core competencies and existing training opportunities for local food practitioners (Long & Chase, 2020). The funded project sought to further the understanding of local food systems practitioners' needs in different environments, cultures, and focus areas, as well as to identify what curricula are currently available to support food systems work.

We used competency-based education as the educational framework for this project. This framework is a useful approach to education that can benefit the food systems field because it helps practitioners gain knowledge and skills while making educational programs more accessible and affordable (Book, 2014). Competencies are defined as a set of skills, a knowledge base, and the attitudes necessary for a profession and can include core areas or standards of practices, skills, and expertise (Columbia University School of Nursing Center for Health Policy & Association for Prevention Teaching and Research [APTR], 2008; Soare, 2015). By identifying core competencies, educators can develop content to meet the needs of practitioners, help practitioners determine their primary interests and goals, and help them find educational programs that meet their needs.

The purpose of the initial USDA AMS–funded Food System Core Competency project was to develop a nationally determined set of competencies that could then be used to identify and tailor educational programs for food system practitioners that address different subsets of the skills needed in the field. Iowa State Extension and Outreach (ISUEO) led the USDA AMS–funded programs, and North Carolina State Extension (NC State Extension) participated as a

leading partner.[1] This initial effort resulted in a list of nine categories, 41 themes, and 142 competencies, each with three levels of learning objectives, as well as a database of 85 existing curricula (Long & Chase, 2020). In a second funded project in 2020, the core competencies were used to create a Food System Practitioner and Educational Resource Database[2] of educational resources and practitioners to facilitate individuals' ability to find curricula that suit their needs in order to build their competency in local food system development.

ISUEO and NC State Extension each offer formal foundational training opportunities for food system professionals: *Local Food Leader* from ISUEO and *Foundations of Local Food Systems Development* from NC State Extension. Both courses were developed prior to the national Food System Core Competency Project; however, both institutions were involved in the North American Food Systems Network (NAFSN, a professional development association for food systems practitioners) and had established a general understanding of local food practitioner needs. Both developed their curricula using place-based feedback and stakeholder engagement, which guided the prioritization of competencies as part of their curriculum development processes. Now that a set of nationally determined core competencies is available, there is an opportunity to compare these two curricula to provide insight into the process of applying the competency framework to classify and compare food systems curricula. This article shares the process of applying the framework and comparing these two curricula, lessons learned, and recommendations for next steps for assessing and communicating local food professional development opportunities for practitioners. The article concludes with updates on the recently developed database and shares ways for additional educators and practitioners to become involved in this ever-evolving project.

Background and Literature Review

Need and Significance of Food System Education for Practitioners

Local food system development work is multifaceted and cross-disciplinary; practitioners must be competent in sectors like food production, marketing, distribution, consumption, and community culture and systems dynamics to effectively support a community-based food system or specific project. Researchers have asserted that a systems approach that crosses academic fields, program areas, and institutions is required to address the complex questions and problems raised in local food systems development (Dunning et al., 2012; Meter, 2010). Local food system practitioners enter this work from various fields, including public health, farming, and community development. University Extension, nonprofits, government, and private businesses are examples of agencies and institutions that are engaged in local food systems development work with roles varying on the area of need and sector-based priorities. Extension agents and other local food systems practitioners are asked to use and leverage multiple existing programs to support local food systems, such as the Extension Master Gardener Program and Family and Consumer Science Programming, as well as develop resources for new areas of programming, like larger collective efforts that include coalition development and food policy councils that make decisions around regionwide planning (Bloom et al., 2020; Fitzgerald & Morgan, 2014; Reynolds, 2011). This requires technical knowledge in specific areas, such as production and business development, in addition to the ability to lead, facilitate, and participate in multidisciplinary collaborations that include stakeholders from across the food system (Raison, 2010). This diverse knowledge base and skill set can be cultivated through education and training programs, although the breadth of local food systems may

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[1] National Leading Partners for the Food System Core Competency Project include The Ohio State University, Colorado State University, National Center for Appropriate Technology, American Farmland Trust, Wallace Center, North American Food Systems Network (NAFSN), John Hopkins Center for a Liveable Future, Northeast Center to Advance Food Safety, and the Community, Local, and Regional Food Systems Community of Practice within eXtension.
[2] https://foodsystemsdb.extension.iastate.edu/

make it impossible for any single training program to address all the competencies needed.

Competency-Based Education

The U.S. Department of Education's National Center for Education Statistics (Jones et al., 2002) defines a competency as "a combination of skills, abilities, and knowledge needed to perform a specific task" (p. vii); it "is often related to concepts like outcomes, skills, abilities, personality traits, capacities, knowledge, attitudes and values" (Soare, 2015, p. 973). Soare (2015) notes that competency-based education methods also support competency-based curriculum that describes a competency, assesses the competency, and then assesses a practitioner's ability to conduct the competency. While competency-based education has been adopted in multiple fields, such as medicine (Linsen et al., 2018), foreign language (Pop & Mazilescu, 2012), public health (Columbia University School of Nursing Center for Health Policy & APTR, 2008), and business (Dragoo & Barrows, 2016), it is a relatively new area for local food system educators and practitioners. To date, there has not been extensive development of competency-based education for Cooperative Extension, a gap which this Food System Core Competency project was designed to address.

Competency-based education, which has been labeled a "disruptive innovation" in education, is an approach that steps away from the traditional credit-based model of education by providing a framework for educators to create more accessible, affordable, transparent, and outcome-oriented curricula and learning materials (Book, 2014). Using the competency-based education approach is appropriate for local food systems practitioners because of the support and practice-based needs the approach provides for working professionals outside of traditional educational settings. We believe that the competency-based education framework allows independent local food systems learners to identify specific competencies they need to gain, based on their own professional and educational backgrounds and goals. Throughout the Food Systems Core Competency Project, the team regularly discussed how competency-based education could provide a method for educators across geographies

to work together on a common competency to identify learning objectives and outcomes, while allowing for each program to incorporate place-based history and knowledge that is valuable in local food systems development.

Another component of competency-based education is the ability to address various levels of learning. Bloom's taxonomy is commonly used in the education field to identify the components of learning, including six major categories: remembering, understanding, applying, analyzing, evaluating, and creating (Forehand, 2010). These levels of learning are also connected to the four stages of competence and the situational leadership model: unconscious, incompetence, conscious incompetence, conscious competence, to unconscious competence (Peel & Nolan, 2015). This relationship is displayed in Figure 1.

The levels of learning and development of competence over time is a direct result of instruction as well as the participants' ability to apply a skill (Peel & Nolan, 2015). This progression leads to being unconsciously competent or having the ability to be an expert in the field and create or teach new practices, which is considered a longitudinal phenomenon and may involve lifelong learning and continual work (Leppink, 2018). Additionally, this process shows that competence can include both short-term understanding as well as lifelong learning, which is a good fit for the diversity and depth of knowledge and competence necessary for local food system development.

Identifying Core Competencies for Food System Practitioners

Beginning in 2014, NAFSN engaged national partners and local food system practitioners to discuss identifying a set of core competencies for local food systems work. In the following years, the network drafted a matrix that included four categories with a total of 42 competencies (Raison et al., 2017). The Food System Core Competency project built upon this early work by NAFSN, relying on leadership from Iowa State University Extension and Outreach, and included partnerships with over 30 national organizations to confirm the core competencies needed for work in local food systems. The project used a collective impact facilitation ap-

Figure 1. Levels of Learning Related to Four Stages of Competence and Situational Leadership Model
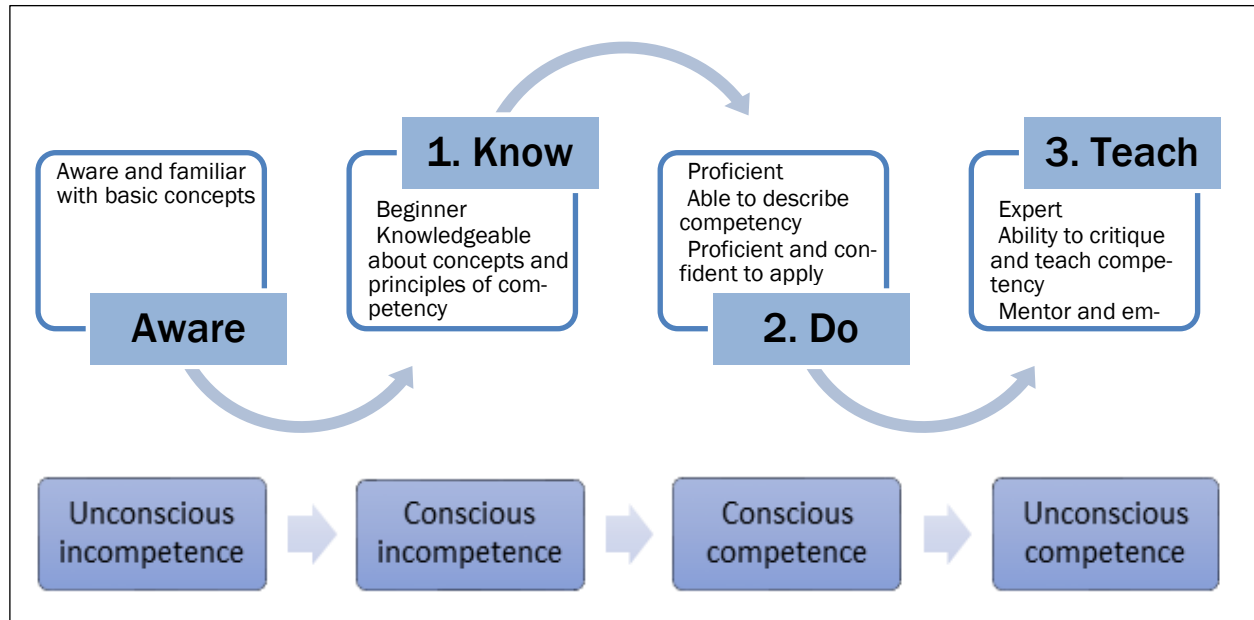
proach (Kania & Kramer, 2011) to work through group discussions on competencies for local food systems practitioners. These discussions began by reviewing the initial work from NAFSN and eXtension, as well as literature reviews and the NAFSN matrix that was developed by partners during the summer of 2017 at the National Association of Community Development Extension Professionals (NACDEP) Conference to highlight various levels of learning from beginning ("describe") to intermediate ("practice"), to expert ("teach"). Following these discussions, the project conducted a national survey of local food systems practitioners in fall 2019, seeking feedback on needed competencies related to nine categories that were identified through these initial discussions: food systems, equity, community capacity, government and policy, natural and built environment, economy and business development, public health and wellness, leadership, and evaluation. The survey received 140 unique responses; it included open-ended questions with requests for specific learning objectives and topics in each of the nine categories. Responses were coded and developed into a listing for each category (Long & Chase, 2020).

As the survey was being analyzed, the national partners continued discussions focusing on levels of learning and created the framework shown in Table 1.

Following the establishment of these three lev-

Table 1. Levels of Learning Identified in the 2019 USDA AMS Food System Core Competency Project as They Relate to Bloom's Taxonomy

Level of Learning Identified in 2019 USDA AMS Core Competency Project	Description of Level of Learning	Related Levels of Bloom's Taxonomy
Level 1: Know	A beginner level that focuses on the ability to understand and describe the content in each competency.	Remember and Understand
Level 2: Do	An intermediate level that involves practicing and participating in activities to show ability related to each competency.	Apply and Analyze
Level 3: Teach	Expert level which may involve evaluation, analysis, or teaching to demonstrate expertise in each competency.	Evaluate and Create

els, it was critical to develop a method for evaluating the level at which the individual curricula teach a competency. This was a difficult task, as the team wanted to showcase the breadth of options for how competencies could be taught, such as activities, lectures, or readings. To do this, the project team decided that learning objectives would be shared as a set of examples rather than as strict guidelines. Using examples helps showcase the breadth of options and can serve as a guide so that education providers can determine the extent to which their curricula meet each competency.

In late 2019, national partners with the Food Systems Core Competency Project determined the following nine categories, 41 themes, and 142 specific competencies (see Table 2 for categories and themes). Additionally, the team determined example learning objectives for each competency, which were summarized in a learning objective matrix; in the interest of space, we have not listed the competencies or learning objectives here.[3]

Following the success of this first phase of the project, a second phase began with the goal of developing a national database. The competencies and learning objectives were used to structure a second national survey to identify existing relevant educational resources; the results of this survey identified 85 educational opportunities (Long & Chase, 2020). The Food Systems Practitioner and Educational Resource Database[4] launched in 2021 as a tool to identify and aggregate individual practitioner profiles and educational opportunities to improve the competencies of food systems practitioners through various levels of learning in order to advance local food systems development. In the sections below, we provide insight into how curriculum providers can apply this matrix to their own curricula and the lessons we learned through the process of applying it to two existing courses.

Table 2. Food System Core Competencies Identified through the USDA AMS Food System Core Competency Project

Category	Themes
Food Systems	Common Language for Food Systems; Supply and Value Chain; Production and Wild Harvesting; Processing and Value-Added Agriculture; Aggregation and Distribution; Market Channels; Consumption; Food Safety; Food Systems Assessment
Equity	Cultural Humility; Historical Acknowledgement and Context; Power, Privilege and Position; Inclusion: Race, Ethnicity, and Income; Income and Resource Disparity
Community Capacity	Building Trust and Relationships; Community Development; Facilitation; Resource Identification
Economy and Business Analysis	Business Development; Business and Organization Legal Structures; Finance and Funding; Market Identification and Marketing Strategies; Economic Development Strategies
Governance and Policy	Policy Identification and Process; Organizing for Policy Change; Governance and Law: Regulations and Licensing Standards
Health and Wellness	Social Determinants of Health; Personal Health; Food Access and Nutrition Assistance
Environment	Planning for the Built and Natural Environment; Agroecology and Ecosystems; Waste Reduction, Reuse and Sustainability; Climate Impact; Built Environment; Disaster Preparedness, Response and Recovery
Leadership	Personal Leadership Styles; Communication and Interaction Skills; Teams and Working Groups
Evaluation	Evaluation and Defining Success; Data Sources and Uses; Strategies, Methods, and Evaluation Plans

[3] For a complete list of the competencies and learning objectives, see https://foodsystemsdb.extension.iastate.edu/competencies
[4] https://foodsystemsdb.extension.iastate.edu/

Applying the Matrix: Course Overviews

To gain insight into how educators can apply the core competency framework, we applied it to two professional development courses developed by state Cooperative Extension programs to meet the needs of their stakeholders. These two courses were developed before the competencies were identified, so they are examples to test the applicability of the matrix to highlight directions for future improvements. Each course is taught in a different manner, one hybrid virtual/in-person, and one virtual self-paced; both utilize place-based materials and context in their teachings. This paper uses the competency matrix to evaluate each program's foundational course, targeting beginning practitioners. However, each state Extension offers additional courses at a more advanced level that are

not addressed here. The following section describes each course in more detail.

Local Food Leader: Iowa State University

The Local Food Leader (LFL) certification[5] is an individual skill development program for beginning local food practitioners and local food supporters and is focused on community food systems development. The goal of the certification is to increase capacity for local food practitioners working in food systems around the U.S.; further objectives are listed in Table 3. Prior to COVID-19, LFL consisted of a one-day, in-person workshop with individual and team activities, followed by four online modules with videos, presentations, reflections, and assignments. During the COVID-19 pandemic, this course went fully virtual and in-

Table 3. Comparison of Course Objectives from Local Food Leader (Iowa State Extension) and Foundations of Local Food Systems Development (NC State Extension) that are Desired for Participants to Obtain Through Course Completion

Local Food Leader	Foundations of Local Food System Development
1. Understand global, local, and community food systems. 2. Organize coalitions that work towards collective community goals and assist in the development of mission, vision, and core values. 3. Manage and facilitate conversations effectively between dynamic groups of people. 4. Utilize an equity lens with food systems development. 5. Understand community processes that include facilitation, project management, partnership, and building successful teams. 6. Provide partners with tools and resources for developing various food systems sectors: production, transformation, distribution, consumption, and resource management (grants, best practices, research, etc.). 7. Engage and empower community partners to work collectively towards a vibrant, healthy community food system that meets the needs of the participants and community members. 8. Know about tools that exist to create food systems reports. 9. Develop successful teams for successful project implementation. 10. Construct plans of work, project scopes, and budgets. 11. Understand the uses and types of logic models. 12. Create evaluation tools that showcase project outcomes.	1. Describe the key components and varying definitions related to local food systems. 2. Describe key challenges and opportunities and benefits of local/regional food systems work. 3. Identify various types of local food systems initiatives that are occurring in their region. 4. Identify and mobilize community assets as they relate to building a local food system. 5. Understand principles and basic strategies of local food systems development practice that span disciplines and multiple food systems sectors. 6. Understand how to identify and mobilize community assets as they relate to local food systems development. 7. Support local food systems efforts by working with and/or educating growers, buyers, and community members in the development of high-performing local food systems.

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[5] https://www.extension.iastate.edu/ffed/virtual-trainings-certifications/

cludes eight, two-hour virtual workshops over four months.[6] Participants receive a certificate upon completion. Two national cohorts have gone through the online certification as of January 2022, which includes 12 hours of workshops, three hours of optional cohort networking time, and approximately 60 hours of online module content.[7]

LFL was developed in 2016 as a response to local food coordinators in the state of Iowa requesting professional development related to their multifaceted job descriptions. In Iowa, the Regional Food Systems Working Group requested professional development around working in food systems and what it meant to be a food system practitioner, creating plans of work, facilitation methods, and evaluation best practices. Over time, the course changed from a one-day, in-person workshop to a hybrid platform with both workshops and online module assignments over the course of four months. Throughout its duration, the course has included an introduction to food systems, facilitation skills, equity in the food system, and evaluation. It has evolved to include work-life balance, building plans of work, and additional tools for financing programs.

In 2017, the Agricultural Marketing Resource Center funded the Local Foods Team (now Food Systems Team) to develop a full certification program with online modules for both Local Food Leader and a second certification called Community Food Systems. This development led to the course being expanded to national availability and launching the hybrid option. Between February 2018 and January 2019, seven Local Food Leader workshops were hosted in Iowa, North Carolina, Texas, Alaska, Colorado, Pennsylvania, and the U.S. Virgin Islands. Two participants (one from California and one from North Carolina) participated in an online-only option. To evaluate these workshops, feedback was gathered from partici-

pants following both the workshops and the online modules.[8] Four additional national certifications were hosted in Iowa, Nebraska, Oregon, and Massachusetts.[9] A total of 183 people participated in the workshops, and 112 registered for the online modules. Of those who registered for the online modules, 24 participants completed the full certification. Of those who received their certification, 23 participated in the Local Food Leader Train-the-Trainer course. The train-the-trainer was developed to support capacity for new trainers to teach the course nationwide. The train-the-trainer involves a course that teaches how to conduct workshop activities and shares suggested funding models for sustainability. It also includes four cohorts throughout the year to discuss new ideas around content, teaching practices, and ways to implement place-based curricula in addition to the LFL base curricula.

After each cohort, LFL evaluation data is gathered to shed light on its impact as well as to garner feedback for course development and future improvements. This is done through a pre- and post-evaluation as well as tests in the online modules. The evaluation plan includes an analysis of quantitative and qualitative data collected through anonymous surveys, completed by participants after participating in the workshop, pre- and post-knowledge change questions from online modules, and test questions regarding knowledge change. Based on the aggregated evaluation from February 2018 to January 2019, the Equity and Inclusion workshop section was rated as the most useful section (70% of participants), followed by evaluation (69%), facilitation and capacity building (69%), and working in food systems (69%). Eighty-nine percent of participants indicated they learned something new from the workshop, and 75% of participants would recommend the workshop to others.

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[6] See the cohort schedule at https://www.extension.iastate.edu/ffed/wp-content/uploads/LFL-Workshop-Schedule_Oct2021_without-zoom.pdf

[7] See the Local Food Leader syllabus at https://www.extension.iastate.edu/ffed/wp-content/uploads/LFL-Syllabus_1-21.pdf

[8] See the full evaluation report at https://www.extension.iastate.edu/ffed/wp-content/uploads/1-21-LFL-Pilot-Certification-Evaluation-Report_Final_updated.pdf

[9] See the evaluation report for the four additional national certications at https://www.extension.iastate.edu/ffed/wp-content/uploads/20200210_Final-CFS-Hubs-Evaluation-Report.pdf

Foundations of Local Food Systems Development: NC State Extension

Foundations of Local Food Systems Development (Foundations) is the first course in a three-course series offered through North Carolina State Extension's Overview of Local Food Systems Development Online Professional Development Training.[10] The three courses in this training are offered online and are self-paced and asynchronous. This introductory course is designed to provide foundational knowledge of local food system development and practice. The original funding for the course came from a Southern Sustainable Agriculture Research and Education (SARE) Professional Development Program grant to develop the curriculum, teach an in-person graduate course, and convert course materials into an online training program (Bloom et al., 2017). In 2014, we used a participatory course-development process to determine the topics, competencies, and resources that should be included in the curriculum, engaging with over 40 stakeholders who represented various sectors of the local food system in North Carolina.

In its current form, the course has three modules that require approximately 15 hours total to complete over three months; participants receive a certificate upon completion. There are an optional three additional hours of synchronous networking and content with instructors. The target audience for this course is people who are new to food systems development or have experience in the field and would like a broader and more complete understanding of local food systems. The three modules are Introduction to Food Systems, Community Engagement and Food Systems Change, and Introducing Regulatory Policy and Frameworks for Local Food Systems Development. In each module, examples of specific topics include the history of the U.S. food system, key terminology for local food system development, community engagement, and an overview of relevant state and local policies. Each module contains a variety of activities, such as videos, recorded presentations, forum posts, virtual field trips, learning activities, and quizzes that function as learning checks and evaluation tools. Participants are required to

achieve at least 80% on post-module quizzes to successfully complete the course. A complete list of course objectives is listed in Table 3.

The Foundations course is a prerequisite for the other two courses in the certificate series (Farm to Fork: Foundations in Local Food Supply & Value Chains and The Bottom Line: Economic Realities & Other Considerations of Local Food Systems) to ensure that participants have a certain level of foundational knowledge. The course evaluation uses quantitative and qualitative methods to collect, analyze, and determine knowledge and confidence attainment and attitude and behavior changes, with most of the outcome evaluation focusing on short- and intermediate-term outcomes. The evaluation data are also used to inform course improvements. Methods for course evaluation include pre- and post-module quizzes, surveys, and a six- to-twelve-month post-course interview. The evaluation data have consistently shown participants' gains in knowledge and intent to change behavior relative to the stated course learning objectives. An analysis of evaluation data from 2021 of pre- and post-test evaluations (N=22) indicates that the participants who completed the training courses significantly improved their local food programming knowledge and skills, based on paired-sample t-tests of quiz and survey data. (See the report in Appendix B.) In 2021, program participants reported a statistically significant change in their level of confidence to support local food system development in their community after completing the online training course. The program was also effective in inspiring the participants to engage in local food development initiatives. For instance, 85% of post-course survey respondents indicated that they would develop professional collaborations and involvement in teaching and demonstration of local food systems topics, principles, practices, and resources in their communities. Qualitative findings from the evaluation show that participants feel more prepared to use a systems approach in their food system development work to support more robust food systems. These results are reflect past program evaluations and

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[10] http://www.localfoodcourses.org/

demonstrate the overall effectiveness of the program (Bloom et al., 2017).

Methods

In order to compare the two courses, each course provider applied the learning objective matrix[11] to their respective course and identified which competencies their program addresses. Currently, educational resource providers review their own curricula to apply the competencies and upload their course information and addressed competencies to the online database. We used the same practice of internal review for this exercise to serve as a pilot for other educational resource providers. In the future there may be opportunities to consider third party reviews or assessment, possibly through NAFSN. The process we used is specifically for course providers to examine their competencies taught with the intent to best promote their product on the new database.

Each course provider team had three members and used individual and team reviews to discuss which level of learning their curricula fit within and any potential discrepancies in perspectives on to what extent the courses taught learning objectives. Then the determined level of learning for each course was compiled (Appendix A). Following the confirmation of competency and level of learning for each course in each team, the two teams developed a comparison matrix to discuss similarities and differences between the two courses. The teams compared the courses at all levels of the matrix, from the nine categories down to the 41 themes and 142 competencies with levels of learning. (See Table 4 for the review of category, theme, competency, and level of learning compared.) The following discussion revolved around an interest in learning how courses are similar and different, how objectives are taught and evaluated, and what insights may be gained into the process of applying the matrix to our courses.

Results

The teams identified overlap within seven of the nine categories: Food Systems, Equity, Community Capacity, Governance and Policy, Health and Well-

ness, Leadership, and Environment; this overlap included 16 themes and 28 competencies. Local Food Leader covers competencies in other two categories, Economy and Business Analysis, and Evaluation, while Foundations of Local Food Systems Development addresses these competencies in more detail in later certificate courses.

Of the 28 shared competencies, we selected seven to focus on for the purposes of comparison because they contained the most in-depth information and unique aspects of the courses. We specifically chose only one competency per category and theme. Table 4 details those competencies and levels of learning; in Table 5, we further evaluate similarities and differences in activity and teaching practices. A more detailed review of the curricula can be found in Appendix A.

Discussion

In applying the new competency matrix to existing courses, we were able to identify challenges of using the matrix from an educator's perspective and uncover similarities and differences between two foundational local food system development courses in how they achieve core competencies for participants.

Lessons Learned from Applying New Competency Matrix to Existing Curriculum

Both course providers developed learning objectives and competencies based on participatory processes with practitioners across the food systems in their respective states and regions. These processes were important for both institutions to develop curricula that meet the needs of their constituents and stakeholders. When reviewing the curricula using the competency matrix, there were two questions that we wanted to answer: first, what are the competencies and level of learning of the course (discussed above); and second, what challenges arose when applying the competency matrix to existing curricula? To address the first question, our goal is to provide a model process to assess individual courses. Then, to address the second question, both teams identified wording that should be clarified to increase the utility of the matrix and

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[11] https://foodsystemsdb.extension.iastate.edu/competencies

Table 4. An Overview of Seven Overlapping Competencies Taught in Iowa State Extension's Local Food Leader and NC State Extension's Foundations of Local Food System Development

Category	Theme	Competency	Level of Learning
Food Systems	Common Language for Food Systems	Food Systems Components	Level 2: Effectively communicate about food systems components and their connections to one another
Equity	Cultural Humility and Self Awareness	Intersectionality	Level 1: Understand and define intersectionality
Community Capacity	Community Development and Strategic Planning	Frameworks	Level 1: Name and describe frameworks for community development
Governance and Policy	Policy Identification and Process	Identification	Level 1: Identify existing policies that impact your work
Health and Wellness	Food Access and Nutrition Assistance	Food Access	Level 1: Identify barriers to food access
Environment	Built Environment	Built Environment	Level 1: Define built environment
Leadership	Teams and Working Groups	Networks	Level 1: Identify community leaders and actors associated with areas of interest

Table 5. Descriptions of How Each Competency and Level of Learning is Taught in Each Course

	Foundations of Local Food System Development (NC State Extension)	Local Food Leader (Iowa State Extension)
Food Systems Components (L2)	We use a circular graphic to teach about the food systems elements, including food production, distribution and aggregation, food processing, marketing, purchasing, preparation and consumption, and resource and waste recovery. We include four external influences: social, political, economic, and contextual/environmental. For each element of the food system, we provide a definition and an example of an NC project or program. We introduce these concepts through a series of videos. Participants build on this knowledge and utilize it in a self-guided field trip activity and forum post.	We teach the Community Food Systems diagram that depicts a circular system of production, processing, distribution, consumption, and resource management. Additionally, it incorporates six community asset areas (driven by the community capitals framework): equity, economy, environment, education, policy, and wellness. Participants review the diagram and have discussions on their primary roles in the food system based on sector and asset area, and also engage in breakout rooms to determine challenges, strengths, and partnerships in each. Then, in the online course software Moodle, participants develop a partnership diagram to understand components and collaboration opportunities.
Intersection (L1)	Intersectionality is defined and applied in an assigned reading in the first introductory module that introduces concepts of justice in the food system (Ammons, 2014) along with other materials to introduce a systems approach to local food system development. This concept is built on in the additional modules and their understanding is assessed in the quiz for Module 1.	Intersectionality is taught in both the equity workshop and online modules. In the workshop, we teach the "Wheel of Difference," (Gardenswartz & Rowe, 2010; Cultural Competence Learning Institute, 2020) to understand and identify areas of difference and intersections across individuals and communities. Participants break into small groups to discuss intersections in the food system relating to power and privilege. In the online modules, optional readings about intersectionality are offered to participants in Module 1.

Continued

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Frameworks (L1)	A series of videos introduces students to community engagement frameworks and methods, such as Community Voice. Developing partnerships, asset-based development, and community capitals are introduced in these videos and additional written materials (Emery et al., 2006). Case studies are provided to reinforce the content. We expose participants to several methods for community engagement that include study circles, windshield or walking tours of the community, in-depth interviews, focus groups, asset mapping, inventories, and visioning processes. Participants build on their knowledge with a self-guided field trip of a local food systems project of their choosing in their community, where they are asked to describe how they see community development frameworks applied.	Multiple community development frameworks are reviewed in workshops and modules through videos and readings. Strategic Doing and Collective Impact basics are taught, and participants then create plans of work and learn facilitation practices to engage the community. In Moodle, participants create an intentional group facilitation plan and reflect on Strategic Doing principles that move projects into the "doing" stage. They present a current community issue that could be worked through using the Strategic Doing four-question framework (Strategic Doing, n.d.)
Identification (L1)	We devote a module to introduce regulatory policy and frameworks for local food systems development. We begin with an introduction to government, law, and policy in the U.S. and North Carolina generally, and specific to food and agriculture, before moving into approaches to policy change. Participants watch a detailed video on the farm bill and learn about how "Big P" and "little p" policies can impact local food system development. We address our learning objectives through a series of videos, learning activities, and forum posts.	Policies are discussed in the first workshop with broad review and brainstorming on local, state, and federal policies that impact food system sectors. In Module 1, participants read about and watch a presentation on the farm bill implementation process. They also complete reflection questions on the connection between the farm bill and their work and community. Additionally, participants reflect on food policy councils and the role an FPC either does or could play in their community. Participants are then tested on their knowledge of the farm bill process in the Module 1 quiz.
Food Access (L1)	Participants watch a video identifying food access as a wicked problem and identifying barriers to food access that have their origins in the design and structure of the food system. If this topic is of particular interest to a participant, they can choose to explore the topic through the self-guided field trip and other forum posts.	In the first and second workshops, food accessibility is discussed both in regard to nutrition and general food and health considerations. The ability to access land or capital is also discussed. In Moodle, questions are posed broadly for individuals to explore areas and barriers within the food system, so if a participant is interested in food access, they have opportunities to explore and evaluate food access in their community.
Built Environment (L1)	While the built environment is mentioned a few times throughout the course, it is defined in an Extension publication that is assigned reading (Bargainer et al., 2018). The built environment is addressed in a section of our introductory module that encourages participants to understand their own community. The built environment is also described in a section on community capitals and assets.	In the workshops, participants discuss the difference between natural and built environment and the context of each. Additionally, throughout the course, scopes of work and evaluation are discussed, which in many cases include evaluating the constraints, barriers, and opportunities for the built environment to increase food access, contribute to food-based businesses, etc.
Networks (L1)	In addition to providing a video on "the power of networks," we provide lists of state-level organizations and ask students to identify local-level food system actors in their communities. Case studies are provided throughout the course demonstrating the ways in which networks collaborate to support local food systems.	In-person workshops incorporate a network diagram to teach participants about the roles of partnerships and leadership. The diagram is also used to highlight bridging and bonding capital as well as gatekeepers in the community. Additionally, in the Evaluation module in Moodle, participants create a web of influence map that includes community and project networks and partnerships that they believe impact the food system in their area.

consistency in its application.

Based on this research, our suggested process for review of courses is to create an internal team to review material and teaching practice, conduct individual reviews with the matrix checklist, and then cross-compare and discuss how each internal reviewer evaluated the level of learning for each competency.

One issue that arose was the different ways to interpret each competency and learning objective, as well as a misunderstanding that these were *example* learning objectives, and not strict guides on what needed to be taught. It became clear that each team reviewed the list of objectives with different perspectives: one as a guide and example, and one as a standard and strict guide. This disparity resulted in confusion, because the competency matrix was designed to explore the various competencies and complexities of food systems rather than a standard set of objectives. Therefore, the matrix provides *examples* that courses may teach, rather than hard and fast rules or standards. The *examples* also became confusing and unclear for reviewers because of the nuanced and flexible approach. It was identified that it is easier to check off a competency and learning objective if there is a specific answer, rather than a suggested and potentially iterative response. For instance, the term "intersectionality" is used in the competency framework, but both programs had different interpretations and understandings of the meaning of this term.

An additional question that arose was how to account for the fact that a competency could be expressed and operationalized differently because of cultural context, place-based nuances, and other environmental and personal conditions. Competencies can also be taught through different materials such as videos, self-guided learning, and other activities. Each team was able to explore how its course incorporates a variety of teaching methods through the lens of place-based context for practitioners to fully understand different concepts, such as examples of food production, natural and built environments, and community and human capacity. Additionally, each course includes many examples of state-specific local food projects and policies, which are included as case studies, virtual field

trips, and used as examples to reinforce course objectives. For example, the NC State Extension Foundations course teaches the competency of "Food System Components" by providing state-specific examples of projects and local food companies for each stage of the food system. Place-based understanding is critical for understanding our local food systems because each community operates within a different context. It also enhances practitioner learning, as it gives them the opportunity to understand and describe concepts. However, applying these materials to the competency framework required determining whether placed-based materials fully addressed a competency, which was an added layer of ambiguity.

As our teams applied the matrix to our courses, we also formed questions on how in-depth we needed to cover a topic before we could confirm that we met the learning objective. The two teams agreed that simply referring to a competency was insufficient for level 1 learning and that "referring" to a topic was more appropriate for an awareness change, versus a knowledge change. One suggestion for improving the utility of the matrix is to better define parameters for whether a course meets a core competency. These two issues suggest that more work and description of each level of learning and suggested learning objectives need to be done to support educational resource providers in their efforts to determine the level of learning they are providing for each competency. Another recommendation that arose from this process is to create a glossary for the competencies that defines key concepts. This glossary would give educational resource providers a clearer understanding of each objective as they evaluate their resources and confirm their competencies and level of learning. Overall, the competency matrix promotes consistency and reliability to the process of applying curricula to the framework and benefits the utility of the new database for both education providers and practitioners who are seeking educational opportunities.

Lessons Learned from the Curriculum Comparison

The new core competency matrix is a useful tool that allows educators to have meaningful discus-

sions and reflections on their curricula across programs. It also allows practitioners to select a course that best addresses their learning needs from a range of available educational opportunities. As the teams at NC State Extension and Iowa State Extension experienced, this tool prompts educators to have meaningful discussions about their curricula, investigate their internal teaching practices, and discuss the need to increase or change the way certain competencies are taught. Additionally, once educational resources have been evaluated through this tool, these available resources will be more easily compared in the new food system resource database.

Over the past several years, Iowa State Extension and NC State Extension have received questions from practitioners asking for a comparison between the two foundational courses. Both programs struggled to formulate a concise answer. Through this evaluation process, we were able to have a detailed discussion and identify key similarities and differences, including overlapping competencies in seven of the nine categories (the courses did not overlap in the remaining two categories: Economy and Business Analysis, and Evaluation). Even within the seven categories where the courses overlapped, our matrices did not completely align.

The core competency matrix provided an opportunity to make broad comparisons of competencies and outcomes. In our discussions, we noted that Local Food Leader is a course for a national audience that focuses more heavily on process-based and assessment skills like facilitation and evaluation, which allows the program to be distributed to a wider geography. While any local food system practitioner can enroll in Foundations of Local Food System Development, this course has a greater emphasis on regional context for the Southeast and the individual aspects of food systems related to production, distribution, and policy. We agree with the use of competency-based education practices as the use for the food systems database matrix, but we also believe that additional detail and definition of each competency is necessary for a clear understanding of what each level of learning should teach. Additionally, competency-based education connects to place-based context, which may be an educational need of a food system practi-

tioner. We encourage course providers to consider this element even though it is not explicitly addressed in the core competency matrix.

Overall, this exercise allowed us to understand how we meet common core competencies with different materials and teaching methods. We suggest that course providers use a similar process to identify and determine the competencies and levels of learning for each of their courses prior to placing them in the food systems database. We also encourage additional thought be put in to creating an external auditing or credentialing practice that could provide insight into best-practice curricula for each competency. This process also highlighted that while we achieve similar core competencies, our courses differ in pedagogical method and approach.

Conclusions

The exercise of applying the core competency matrix to two introductory local food courses helped us to develop insight into the strengths and weaknesses of the newly developed framework and matrix for food system competencies, including identifying directions for future work on this project. To start, we recommend creating a glossary that can clarify key terms to ensure that educators apply the matrix and framework consistently. We also believe that more guidance is needed for educators on how to evaluate curricula in order to identify which level of learning is taught. Lastly, we recommend that an additional competency related to the place-based nature of local and regional foods should be adopted in the core competency matrix because, through comparison, each course fully realized the importance of teaching place-based food systems and the intersectionality that place has in equity, culture, climate, and general food system practices.

An additional question, which may require further research, is to consider how teaching materials qualify as adequately addressing the learning objective. For example, if the curriculum is developed to teach a particular skill and competency, but the participant does not complete or participate in all activities, will that competency still be learned and achieved in the same way? The assumed answer is no, and thus to fully meet the level of learning

through the curricula, it is also the responsibility of the participant to engage in and fully absorb information. For future work, there may be an opportunity to develop a comprehensive evaluation method to confirm the extent that each competency's level of learning is fully achieved. This could lead to an overarching systems-based evaluation method for all educational resources that select the same competency to then report the extent to which participants achieve the level of learning.

Once these issues are addressed, we believe that this tool has the potential to support course providers in assessing their competencies, and in turn, help practitioners to identify which course best fits meet their needs and interests. Through understanding competencies taught across curricula, there are opportunities to foster new partnership among educators either through sharing resources or other methods of peer-to-peer learning. For example, curricula that teach different competencies could complement each other (for example, a course teaching production could combine with a course focuses on community development). Complementary programs could consider discussing their teaching methods and materials to identify what works best for learners, as may programs that teach similar content but with a different place-based focus or approach. There are also continued efforts from NAFSN's Training and Certification Circle, whose membership is made up of and open to curriculum providers and interested professionals, to research and develop a verification system for food system curricula. This could help connect new and beginning food system professionals with relevant training opportunities.

For now, the database continues to evolve, and while there are changes and edits that need to occur, this database is a strong resource for educational resource providers, existing practitioners, and potential practitioners and students to learn about resources and people working in this field across the nation.

Acknowledgments

Appendices (both files can be downloaded from this article's webpage)

- Appendix A: North Carolina State and ISUEO Competency Matrix [Excel file]

- Appendix B: North Carolina State Extension 2021 Foundations of Local Food System Development Evaluation Report

References

Ammons, S. (2014). *Shining a light in dark places: Raising up the work of Southern women of color in the food system.* Center for Social Inclusion. https://cefs.ncsu.edu/resources/shining-a-light-in-dark-places-raising-up-the-work-of-southern-women-of-color-in-the-food-system-2014/

Bargainer, M., Eley, M., Fogel, J., Jakes, S., Peery, S., Prohn, S., Sanberg, N., Smutko, S. (2018). *Faciliator's guidebook— 2018, Community-based food system assessment and planning* (Publication CV-88NP). Virginia Cooperative Extension. https://www.pubs.ext.vt.edu/3108/3108-9029/3108-9029.html

Bloom, J. D., Lelekacs, J. M., Dunning, R., Piner, A., & Brinkmeyer, E. (2017). Local food systems course for Extension educators in North Carolina: summary of an innovative program. *Journal of Extension*, *55*(4), Article 22. https://tigerprints.clemson.edu/joe/vol55/iss4/22

Bloom, J. D., Lelekacs, J., Hofing, G., Stout, R., Marshall, M., & Davis, K. (2020). Integrating food systems and local food in Family and Consumer Sciences: Perspectives from the Pilot Extension Master Food Volunteer Program. *Journal of Agriculture, Food Systems, and Community Development*, *9*(2), 197–220. https://doi.org/10.5304/jafscd.2020.092.013

Book, P. A. (2014). *all hands on deck: ten lessons from early adopters of competency-based education*. WICHE Cooperative for Educational Technologies (WCET). https://files.eric.ed.gov/fulltext/ED546830.pdf

Cultural Competence Learning Institute. (2020). *Diversity Wheel*. From Cultural Competence Learning Institute: https://community.astc.org/ccli/resources-for-action/group-activities/diversity-wheel

Columbia University School of Nursing Center for Health Policy & Association for Prevention Teaching and Research [APTR]. (2008). *Competency-to-curriculum toolkit* (Revised edition). http://www.phf.org/resourcestools/documents/competency_to_curriculum_toolkit08.pdf

Dragoo, A., & Barrows, R. (2016). Implementing competency-based business curricula in higher education. *Journal of Education for Business*, *91*(7), 374–379. https://doi.org/10.1080/08832323.2016.1237932

Dunning, R., Creamer, N., Lelekacs, J. M., O'Sullivan, J., Thraves, T., & Wymore, T. (2012). Educator and institutional entrepreneur: Cooperative Extension and the building of localized food systems. *Journal of Agriculture, Food Systems, and Community Development*, *3*(1), 99–112. https://doi.org/10.5304/jafscd.2012.031.010

Emery, M., Fey, S., & Flora, C. (2006). Using community capitals to develop assets for positive community change. *CD Practice*, *13*, 1-19. http://srdc.msstate.edu/fop/levelthree/trainarc/socialcapital/communitycapitalstodevelopassets-emeryfeyflora2006.pdf

Fitzgerald, N., & Morgan, K. (2014). A food policy council guide for Extension professionals. *The Journal of Extension, 52*(2), Article 23. https://tigerprints.clemson.edu/joe/vol52/iss2/23

Forehand, M. (2010). Bloom's taxonomy: Original and revised. In M. Oregy (Ed.), *Emerging perspectives on learning, teaching, and technology* (pp. 41–47). https://www.d41.org/cms/lib/IL01904672/Centricity/Domain/422/BloomsTaxonomy.pdf

Gardenswartz, L., & Rowe, A. (2010). *Figure 3.1 | Four Layers of Diversity* [Figure]. Managing diversity: A complete desk reference & planning guide. https://www.shrm.org/LearningAndCareer/learning/ManagingDiversityFigures/FIGURE%2003-01%20Four%20Layers%20of%20Diversity.pdf

Hilchey, D., Li, X., & Gillespie, G. W. (2021). *Trends in the food system development profession in the U.S. and Canada: A comparison of 2012 and 2019 survey results*. North American Food Systems Network (NAFSN). https://www.foodsystemsnetwork.org/docs/Trends_Report_Food_Systems_Development_Profession_2012_2019.pdf

Jones, E. A., Voorhees, R. A., with Paulson, K. (2002). *Defining and assessing learning: Exploring competency-based initiatives* (Report NCES 2002-159). U.S. Department of Education, National Center for Education Statistics. https://nces.ed.gov/pubs2002/2002159.pdf

Kania, J., & Kramer, M. (2011). Collective impact. *Stanford Social Innovation Review*, *9*(1), 36–41. https://doi.org/10.48558/5900-KN19

Lelekacs, J. M., Bloom, J. D., Jayaratne, K. S. U., Leach, B., Wymore, T., & Mitchell, C. (2016). Planning, delivering, and evaluating an extension in-service training program for developing local food systems: Lessons learned. *Journal of Human Sciences & Extension*, *4*(2), 1–19. https://www.jhseonline.com/article/view/692

Leppink, J. (2018). The art of acknowledging that we know nearly nothing. *Health Professions Education, 4*(2), 67–69. https://doi.org/10.1016/j.hpe.2018.03.004

Linsen, A., Elshout, G., Pols, D., Zwaan, L., & Mamede, S. (2018). Education in clinical reasoning: An experimental study on strategies to foster novice medical students' engagement in learning activities. *Health Provessions Education*, *4*(2), 86–96. https://doi.org/10.1016/j.hpe.2017.03.003

Long, C., & Chase, C. (2020). *Food system core competency project: Iowa State & USDA AMS Cooperative Agreement*. Iowa State University. https://www.extension.iastate.edu/ffed/wp-content/uploads/2020_CoreCompetencyFinalReport2.pdf

Meter, K. (2010). Metrics from the Field: Letting food systems emerge. *Journal of Agriculture, Food Systems, and Community Development*, *1*(1), 23–26. https://doi.org/10.5304/jafscd.2010.011.006

Peel, J. L., & Nolan, R. J. (2015). You can't start a central line? Supervising residents at different stages of the learning cycle. *Journal of Graduate Medical Education, 7*(4), 536–538. https://doi.org/10.4300/JGME-D-15-00025.1

Pop, M.-C., & Mazilescu, C.-A. (2012). Competence-based curricular design for foreign language teaching in the Romanian technical universities. *Procedia - Social and Behavioral Sciences*, *46*, 4200-4204. https://doi.org/10.1016/j.sbspro.2012.06.226

Raison, B. (2010). Educators or facilitators? Clarifying Extension's role in the emerging local food systems movement. *Journal of Extension*, *48*(3), Article 8. https://tigerprints.clemson.edu/joe/vol48/iss3/8

Raison, B., Long, C., & Lelekacs, J. (2017, July). *NAFSN updated core competencies matrix*.

Reynolds, K. A. (2011). Expanding technical assistance for urban agriculture: Best practices for extension services in California and beyond. *Journal of Agriculture, Food Systems, and Community Development*, *1*(3), 197–216. https://doi.org/10.5304/jafscd.2011.013.013

Schipanski, M. E., MacDonald, G. K., Rosenzweig, S., Chappell, M. J., Bennett, E. M., Bezner Kerr, R., Blesch, J., Crews, T., Drinkwater, L., Lundgren, J. G., & Schnarr, C. (2016). Realizing resilient food systems. *BioScience*, *66*(7), 600–610. https://doi.org/10.1093/biosci/biw052

Soare, E. (2015). Perspectives on designing the competence based curriculum. *Procedia - Social and Behavioral Sciences, 180*, 972–977. Social and Behavioral Sciences. https://doi.org/10.1016/j.sbspro.2015.02.259

Strategic Doing. (n.d.). What are the "4 questions" and the "10 rules"? Retrieved October 2021 from https://strategicdoing.net/4-questions-and-10-rules/#:~:text=What%20are%20all%20the%20possible,What%20will%20we%20do%3F

Connectivity and racial equity in responding to COVID-19 impacts in the Chicago regional food system

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Abstract
The COVID-19 outbreak led to major disruptions in food systems across the globe. In the United States' Chicago region, the outbreak created immediate concerns around increased hunger, food insecurity, supply chain disruptions, and loss of local livelihoods. This was especially evident in communities of color, which faced disproportionate impacts from the pandemic. In March 2020, the Chicago Food Policy Action Council (CFPAC) coordinated a Rapid Response Effort that convened people in working groups related to emergency food assistance, local food producers, small businesses, and food system workers to address urgent needs that arose due to the pandemic. Each working group met regularly through virtual calls. This effort has persisted throughout the pandemic in various forms. For this study, we interviewed CFPAC staff members and participants in these calls to create narratives that document respondents' perceptions of the Rapid Response Effort's evolution, benefits, challenges, and potential for long-term impacts.

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Thematic analysis conducted across these narratives revealed the importance of network connections to overcoming food system disruptions caused by the COVID-19 pandemic. Our analysis also underscored challenges associated with racism in efforts to strengthen local and regional food systems. These findings indicate a need for research and practice that intentionally attend to power disparities related to race within collaborative networks in order to structure local and regional food systems to achieve greater racial equity and resilience to future shocks.

Keywords
Pandemic, COVID-19, COVID-19 Response, Resilience, Food Justice, Race, Equity, Social Network Formation, Multisectoral Collaboration, Community Engagement, Local Food System, Mutual Aid

Introduction and Literature Review
The COVID-19 pandemic caused myriad disruptions within food systems and led to food insecurity and other impacts in the U.S. that disproportionately affected people of color. In the Chicago metropolitan region, the Chicago Food Policy Action Council (CFPAC) organized a Rapid Response Effort that united people within and across food system sectors to address the pandemic's ever-changing impacts. This exploratory research documents experiences of the Rapid Response Effort through narratives gathered from CFPAC staff and other Rapid Response participants. The results affirm the importance of collaborative networks in responding to the pandemic's food system impacts but also emphasize the challenges of overcoming power disparities within networks that arise from social inequities related to race.

Food System Disruptions During the COVID-19 Pandemic
Despite its ability to provide an efficient supply of cheap goods, the dominant food system has become fragile and susceptible to collapse upon the rise of a single disruptor. This was observed globally during the COVID-19 pandemic, which caused various disruptions to food systems across demand-side, supply-side, and integrated processes. The COVID-19 pandemic has yet to cease and still has some countries questioning global food security risks (Zhan & Chen, 2021). Disruptions occurred within supply chains, including physical inaccessibility to food products due to social distancing and quarantine restrictions. In the U.S., examples of supply-side disruptions included temporary factory closures or restricted staffing (in meat packaging, food-processing, and production facilities), labor shortages, disruptions to transport networks, and quarantine regulations for cross-border imports (Aday & Aday, 2020; Hobbs, 2020). On the demand side, challenges included panic buying, a fall in consumer incomes from pandemic-induced unemployment, a decrease in community accessibility through institutional closures, and new pressures on the food retailing sector due to business closures (Hobbs, 2020).

The current global food system operates on the neoliberal ideology that the best way to drive development is through consumerism and global trade routes (Benton, 2020). In the dominant, neoliberal food system, productivist policies focused on maximizing yield and profit using technology to reduce labor costs have made it increasingly difficult for smaller agricultural actors to be successful. Agricultural subsidies, market deregulation, and privatization have devalued alternative agricultural practices, and this has led to a decline in small farms and local food systems (Laforge et al., 2017). However, evaluations of COVID-19's impacts on the food system have revealed the rigidity of our current food system, with advocates pointing toward a refocus on local food supply chains as a solution (Hobbs, 2020).

COVID-19 Exacerbated Racial Inequities in Food System
In the U.S., COVID-19 underscored not only the food system's vulnerability but also its racial inequities. Pre-pandemic, household food insecurity (i.e., "unable, at times, to acquire food for one or more household members" [Coleman-Jensen et al., 2019, p. 4]) was disproportionately higher among racially minoritized groups. A survey of U.S. households documented increases in food insecurity across all racial groups due to COVID-19; however, Black,

Asian, and Hispanic[1] respondents were significantly less confident about their household food security than white respondents. Among food-insecure households, more Black households reported that they could not afford to buy food, while more Asian and Hispanic households reported being afraid to go out to buy food due to anti-Asian xenophobia or risks of deportation (Morales et al., 2021). Prior to the COVID-19 pandemic, food insecurity in Chicago had been decreasing (Nelson, 2020), yet a consistent racial gap in food access persisted (Kolak et al., 2018) due to a history of systemic disinvestment of the South and West sides of Chicago. The COVID-19 pandemic increased food insecurity and exacerbated existing inequalities (Nelson, 2020). In June 2021, the City of Chicago reported food insecurity levels in the overall Chicago metro region at 19%, with food insecurity within Latine communities at 29% and in Black communities at 37%—percentages "significantly above pre-pandemic levels" (City of Chicago, Office of the Mayor, 2021, p. 2). Communities of color face parallel injustices as food system inequities co-occur with health concerns, a result of a broken food system that increases malnourishment. People of color have had disproportionately higher COVID-19 hospitalization and death rates in the U.S. (Centers for Disease Control and Prevention, 2022), and there appears to be a link between food insecurity and a higher risk of developing more severe COVID-19 symptoms (Klassen & Murphy, 2020).

Another parallel food injustice begot by systemic racism is the marginalization of people of color in the agricultural industry. Rooted historically in slavery and laws that alienated African Americans, Native Americans, Mexican and other Latine immigrants, and Asian immigrants from the land, the exclusion of people of color from prospering in farming and food-related enterprises persists today (Alkon & Agyeman, 2011; Horst & Marion, 2019; Lunsford et al., 2021). This occurs even though the U.S. food system operates on the labor of people of color (U.S. Department of

Agriculture Economic Research Service [USDA ERS], 2022) and that African American and Native American foodways, among others, illustrate ways to build diversified and adaptive food systems to better nourish all communities (Lunsford et al., 2021). Persistent inequities in the food system reflect structural racism, which Lawrence and Keleher (2004) define as:

> the normalization and legitimization of an array of dynamics—historical, cultural, institutional, and interpersonal—that routinely advantage Whites while producing cumulative and chronic adverse outcomes for people of color. It is a system of hierarchy and inequity, primarily characterized by White supremacy—the preferential treatment, privilege, and power for White people at the expense of Black, Latino, Asian, Pacific Islander, Native American, Arab, and other racially oppressed people. (p. 1)

Governmental responses to the pandemic's impacts on the food system have been criticized for perpetuating racial disparities. One such case was the Farmers to Families Food Box Program, which excluded small- and midsize farms as well as those owned by women and people of color, and failed to ensure equitable food distribution (Broad Leib et al., 2021).

Resisting racism in the U.S. food system as well as white-led alternative food movements, *food justice* affirms Black, Brown, and Indigenous communities' right to grow, sell, and eat food that is healthy, affordable, culturally appropriate, and produced in ways that promote the welfare of land, workers, and animals (Alkon & Agyeman, 2011). Prior to the pandemic, Chicago food justice advocates worked to go beyond providing food in food-insecure communities by transforming the underlying power structures that deny communities of color investment, resources, and decision-making control related to food and agriculture (Block et al., 2012).

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[1] We use the term "Hispanic" when used in the original source; otherwise, we use "Latine" to refer to people of diverse races, ethnicities, cultures, and languages who share Latin American ancestry. We opt for Latine to include all gender identities (Celis Carbajal, 2020).

Responding to Pandemic Impacts

When the pandemic hit the Chicago region, numerous organizations responded to food system disruptions, including the anticipated higher rates of food insecurity in communities of color noted above. For example, 40 mutual aid organizations throughout Chicago have addressed food insecurity during the COVID-19 pandemic by forming relationships that enable sharing food and establishing infrastructure like storage and transportation that is needed to distribute food to communities (Lofton et al., 2021). Among efforts to respond to COVID-19 disruptions in the food system, the Chicago Food Policy Action Council (CFPAC) coordinated the Rapid Response Effort. This multifaceted emergency response initiative began in early March 2020, when a key team of CFPAC staff quickly organized and brought people together to brainstorm solutions to unfolding pandemic-related crises through groups that focused on emergency food assistance, food businesses, food chain workers, local food producers, funders, and a "rhizome" network (the latter served to connect across other groups). Conducted virtually due to state-mandated restrictions against gathering in person, the Rapid Response Effort built relationships through online meetings or "calls." These working groups convened frequently (e.g., weekly) at the pandemic's start; meetings grew less frequent (e.g., monthly) as the effort evolved with changing pandemic conditions. Central to this effort was garnering support for communities most affected by the impacts of COVID-19 and pivoting efforts when necessary to respond better to participants' priorities. Through this quickly formulated and action-oriented effort, CFPAC coordinated and continues to facilitate emergency food, funding, and other resource distribution to communities affected by the ongoing COVID-19 pandemic.

Collaborative Network Benefits and Challenges

The Rapid Response Effort is an example of a collaborative network. Myriad studies have noted the benefits of network building in strengthening regional food systems. For example, surveying Canadian and U.S. farmers, Laforge et al. (2017) found that many respondents felt that governmental support for local farmers was insufficient; they valued support from other local farmers and grassroots organizations. Building networks allows for sharing information, knowledge, and resources (Laforge et al., 2017), as well as identifying social problems within communities, determining practical solutions, and providing important services (Provan et al., 2005), especially when those services are not reliably provided by the government. Forming networks of individuals and organizations in local or regional food systems also can be important to improving local, state, or federal policy. For example, a U.S. case study of the Farmers Market Nutrition Program (FMNP) documented the benefits of increased social network connections, including market accessibility, hybridized state- and local-level partnerships, and increased trust between government officials and local citizens. They found that partners, including governmental actors, working together identified unexpected barriers to governmental program effectiveness and strategies to address those (Dollahite et al., 2005).

While networks are important to robust local and regional food systems, several barriers can impede collaboration. Challenges arise, in part, because network building takes place within the larger neoliberal economic system. For example, McGuire et al. (2013) noted that many farmers internalize neoliberal values to maximize production. Internalized values of competition and free market capitalism can hinder farmers' willingness to participate in network building if they prefer to work individually as opposed to collectively. For collaborating parties to be motivated to invest their resources, they must believe that the collaboration will lead to mutually beneficial outcomes (Miller & McCole, 2014). But organizations also must prioritize their own needs and meet the demands of their stakeholders, clients, and funders; this can interfere with their abilities to act collectively. Cooperation may not always be in an organization's best interests and can sometimes reduce the managerial autonomy of individual organizations, which may diminish their incentive to participate in a collaborative network (Provan et al., 2005).

Even when individuals and organizations are willing to cooperate, unequal resource distribution can prevent networks from being equitable because they favor those in dominant social positions.

Resource distribution, including funding, can be easily mismanaged without local knowledge and data. For instance, the main barrier observed in the FMNP case study referenced earlier was an inadequate supply of resources across all sites (Dollahite et al., 2005). Finances also can influence power dynamics within networks and create a risk of co-optation. For example, in 2012, the Manitoba Food Processors Association formed a committee to create a "Buy Manitoba" program to increase demand for local food. The committee included grassroots organizations; however, industry groups' ability to match funding gave them the most power over the program. Major corporations eventually co-opted Buy Manitoba, labeling their products as "Made In Manitoba" even though they were only processed there (Laforge et al., 2017).

Research Purpose

Given the benefits associated with collaborative networks but also the challenges that can impede their success, we sought to understand the experiences within the COVID-19 Rapid Response Effort, a network of working groups facilitated by CFPAC to respond to the food system disruptions caused by the pandemic. Specifically, we gathered narratives about the Rapid Response Effort through interviews with CFPAC staff and other call participants, including a grower, public health professional, social entrepreneur, policy advocate, and funder. We inquired about their motivations in the Rapid Response Effort; perceptions of its evolution and impacts; experiences of its culture regarding racial identity, equity, and power; and insights into its potential to support long-term change in Chicago's regional food system. Our analysis of the narrative responses to these questions was inductive, allowing patterns to emerge from the stories (Patton, 2002). While strengthening network connections was essential to the positive outcomes resulting from the Rapid Response Effort, power disparities related to systemic racism posed a central challenge. Our results can inform movements to help build equitable and resilient food systems that are able to provide sufficient, culturally appropriate, and accessible food to all, in the face of various and even unforeseen disturbances (Tendell et al., 2015).

Applied Research Methods

We used narrative methodology to gather stories about the lived experiences of research participants (Appendices A and B). Narrative methodology differs from other research approaches because it evokes rich data with "characters, a plot, and development towards a resolution" (Ospina & Dodge, 2005, p. 143). Collecting stories enables the creation of first-person written accounts, or narratives, that "allow access to professional craft and experiential knowledge otherwise invisible to those outside the occupation" (Morgan-Fleming, 2007). Eliciting human-centered stories can illuminate the complexity of a situation that less-dimensional methods, like short-form online surveys, could otherwise miss. In this study, we center the lived experiences of CFPAC staff and other individuals participating in the Rapid Response Effort, including a grower, policy organizer, public health professional, social entrepreneur, and funder (Table 1). Between November 2020 and July 2021, we conducted individual semi-structured interviews over Zoom software with five CFPAC staff members and five CFPAC Rapid Response participants. We then crafted a narrative from each interview transcript and analyzed data across these narratives to identify emergent themes.

Limitations of our research relate to its sample. The five interviews with CFPAC staff included everyone who played substantive roles in the initiation and ongoing facilitation of the Rapid Response Effort. However, the five nonstaff participants were identified through volunteer sampling and compose a small subset of Rapid Response participants, which numbered over 350 individuals from various organizations and communities at the effort's peak. Some of those 350-plus participants were no longer involved by the time of this study. Of the many participants who were still involved, responses were low likely due to competing demands for people's time (e.g., paid work) and our inability to provide a financial incentive. Our aim, however, was not to generalize across all participants in the Rapid Response Effort but to gather detailed, first-person accounts that provide access to each respondent's unique experiential knowledge. Recognizing that each story reflects the narrator's bias, and that we also

bring biases to the research given our own social positions, we made sure during data analysis to identify not only converging patterns but also diverging patterns by seeking discrepant evidence (Maxwell, 2005). Our results highlight specific insights regarding the challenge of navigating racial dynamics in collaborative networks that may be transferable to food movements more broadly.

This research was initiated in an upper-level undergraduate food systems course instructed by Schusler. Obach, Perdue, and Vaca co-designed the study under Schusler's guidance and in consultation with Sheikh, who served at that time as CFPAC's systems and strategy manager. The latter helped ensure that the study would have practical relevance for CFPAC and that the language used in recruitment materials and interview guides would be meaningful and accessible to Rapid Response participants. CFPAC staff did not play any role in data collection or analysis. The study was approved by the Loyola University Chicago Institutional Review Board.

Recruitment and Sample

We first sought to understand the Rapid Response Effort through CFPAC staff members' perspectives because they had been the most extensively involved. We then invited other Rapid Response participants to take part in this research using a recruitment flyer designed to be accessible and engaging, an online form for participants to express interest, and a follow-up email sent to those interested in the study. Anyone involved in a Rapid Response working group was eligible to participate and compensated with a gift of locally roasted coffee beans. CFPAC's communication staff distributed the recruitment flyer with the embedded interest form by email, newsletters, and social media. We also joined two Rapid Response Rhizome calls to introduce ourselves and our study, and invite participants.

We interviewed a total of 10 respondents: five CFPAC staff and five other Rapid Response participants. There was greater racial diversity among the staff and less among other participants interviewed (Table 1). This might reflect that white participants possessed the greater privilege to take time away from other demands in order to participate in a research interview, for example, because they could be interviewed as part of a professional job. We also acknowledge the positionality of our research team given our own social identities. Among the four university-based researchers, one is an assistant professor and three were undergraduate students at the time of the study. All use she/her/hers pronouns. Two identify as white, one as white and Filipina, and one as Latina. Through their own lived experiences as women of color, the latter two were able to relate directly to specific aspects of our conversations with research participants, which was not true for all team members.

Table 1. Racial/Ethnic and Gender Identities of Interview Participants

Rapid Response Role	Self-identified Race/Ethnicity	Gender or Pronouns
CFPAC staff: Systems and Strategy Manager	Indian/Pakistani Minority	all pronouns
CFPAC staff: Community Partnerships Manager	Mexican and Pakistani	she/her
CFPAC staff: Communication Specialist	Half-White, Half-Filipino	she/her
CFPAC staff: Good Food Purchasing Plan Manager	White	she/her
CFPAC staff: Executive Director	White	he/him
Participant: Grower and Advocate	Immigrant	gender nonconforming
Participant: Social Entrepreneur	Greek American	she/her
Participant: Funder	White	she/her
Participant: Policy Organizer	White	she/her
Participant: Public Health Professional	White	she/her

Data Collection

Prior to each interview, we familiarized ourselves with the interviewee through their LinkedIn profile, when available, and organizational websites. We also read Rapid Response working group notes kept by CFPAC staff and available to all call participants in a shared Google Drive folder. Interviews with staff occurred 8–9 months after the Rapid Response Effort began. We inquired about the principles guiding their work, how their identities inform their work, evolution of the Rapid Response working groups, pivotal moments, perceived impacts, forces that impeded the effort, lessons learned, and desired directions for the effort's future (see Appendix A). Based on our understanding of the Rapid Response Effort gained from interviews with CFPAC staff, we focused the interviews with other participants on their motivations for joining one or more working groups; connections they made through the calls; perceived impacts; observations on the interplay of race, equity, and power within the working group(s); logistical feedback; and hopes for long-term outcomes (Appendix B). Interviews with nonstaff participants occurred 14–16 months after the effort's start. All interviews were semi-structured to allow for the flow of natural conversation and for inductive information to surface. At least two researchers conducted each interview, which lasted 45–60 minutes for CFPAC staff and 30–45 minutes for Rapid Response participants. Staff interviews were longer in length than those of other participants because the staff facilitated one or more working groups throughout the full duration of the Rapid Response Effort and possessed more intimate knowledge of the effort overall. The interviews occurred via Zoom and were recorded.

Crafting and Analyzing Narratives

After conducting each interview, we had the audio recording professionally transcribed and reviewed each transcript against the recording to correct any errors. Then we transformed each transcript into a story-like narrative written in the voice of each interviewee (Forester et al., 2005). We edited the transcript to remove tangential portions of the conversation, sometimes reorganized content so that the narrative flowed logically, and removed some

(but not all) filler words, such as "like" and "um." We sought to ensure that the narrative read as if the person were talking about their experience. After creating each narrative, we emailed it to the interviewee to review and confirm that we authentically represented their voice. Some requested minor revisions, which we integrated. Interviewees also chose whether they would like to be personally identified in their story or have their identity kept confidential.

We analyzed the narratives using NVivo 12.0 software. Our initial coding system included six key themes that followed our lines of inquiry during the interviews: motivation for initiating or joining the calls, perceived benefits and impacts, challenges experienced, the evolution of the call space, identity within the call space, and hopes for long-term impacts. We inductively analyzed data within each of these overarching themes, allowing codes to arise from the data (Charmaz, 2006). Two researchers (Obach and Vaca) independently coded the five staff interviews. Each analyst identified "parent nodes" to represent the overarching themes and finer-scaled "child nodes" to capture more specific nuances within the data under each broad theme. The analysts and Schusler met weekly throughout this process to identify similarities and differences in their emerging analyses. As expected, some overlap occurred in the analyses as well as some differences in how each analyst organized the parent and child nodes. The differences did not reflect conflicting analyses but rather different approaches to organizing the data. By discussing these points of difference and agreeing upon a unified coding approach, we arrived at a consensus on a coding system (Harry et al., 2005) that we deemed most robustly represented the data across these five narratives (Obach & Vaca, 2021). With this coding system as a basis for further analysis, one researcher (Obach) analyzed the narratives of the nonstaff Rapid Response participants interviewed in regular consultation with Schusler. This led to the identification of additional "child nodes" within each theme.

Results

Next, we report the results of thematic analysis across interviewees' narratives of the Rapid

Response Effort. We describe the Rapid Response Effort's impetus and evolution, perceptions about the importance of social networks, challenges that arose related to race and societal dynamics of privilege and oppression, and desires for its future direction.

Rapid Response Impetus and Evolution

CFPAC staff described initially creating Rapid Response working groups to maintain and expand connectivity in their network amid the consequences of the COVID-19 pandemic in order to respond to the specific needs of each group's sector. "We wanted to rapidly respond to the needs on the ground, and we wanted to maintain our connectivity to our stakeholders on the ground, and really know what was going on with folks," explained a staff member. Working groups evolved over time in response to the priorities that CFPAC staff heard from call participants. "What we really want to do [in order] to provide better, more sustainable impact is to push resilient thinking. Resilience is not that everything is good; resilience is that you can pivot," noted another staff member who facilitated working group calls.

Nonstaff participants noted numerous factors that influenced their involvement with the effort. Some wanted to mobilize and find solutions to immediate crises in the food system. "In the beginning, there was a push to get growers [involved].… Folks wanted to do mutual aid work, folks needed technical support, folks needed funding," shared a call participant. Other individuals (e.g., funders, growers, business leaders) who could provide specific resources, such as funding, fresh produce, cold storage, or personal protective equipment (PPE), joined the calls. Another participant reflected, "We saw [CFPAC] doing a good job of pulling people together. … The fact that they had people who were convening those calls, we thought was an important service to the field." This involved building relationships through a virtual setting, providing support to those affected by the impacts of COVID-19, and pivoting efforts when necessary to respond to conditions on the ground.

Food System Network Connections

Both CFPAC staff and other call participants reported diverse benefits resulting from the Rapid Response Effort, some intended and others serendipitous, some directly due to the effort and others through a domino effect.

Relationship Building

According to all interviewees, the Rapid Response Effort expanded existing networks and developed new connections (Figures 1 and 2) among people within and across food system sectors (e.g., farmers, producers, distributors, food workers, funders, grant writers, local governments, and community-based organizations) and across different regional communities, particularly communities of color, which were hit hardest by COVID-19 and its impacts.

Staff reflected that the calls initially served as a place where individuals or organizations formed direct connections with one another. "The most meaningful aspect of working on the Rapid Response for me has been the speed of the collaborations that have occurred. [Transitioning to an] online [communications model], it is much easier to bring people together in a much more rapid way. There is a lot more engagement across distinct groups, communities, neighborhoods, and sectors in a much more rapid fluid way than was happening before," observed a staff member. Over the effort's duration, it eventually became more of an information exchange hub where people could find out about available funding, training programs, collaborative opportunities, etc.

Nonstaff call participants noted that several connections previously existed, but coming to the calls gave them a more holistic understanding of individuals, groups, and their various roles within the food system. This facilitated clarity and easier collaboration on projects. "CFPAC was able to pull together a lot of good networks out there that were already known, at least to somebody in CFPAC, and that was the fast glue," observed one call participant. Another noted, "The kinds of networks that people were already in was more visible through the CFPAC conversations than it may have been before. It was a convening point for a lot of people to come together." Another shared,

"I think understanding who the players were, being able to make that connection between the people [and] the businesses … that was an essential thing that came out of the rhizome calls that I didn't understand before or know who those people were."

Setting Priorities, Exchanging Information, and Taking Action
Nonstaff call participants reported that this illumination of the network of individuals and organizations engaged in the food system helped them to coordinate with others on specific projects to address immediate needs, such as the distribution of emergency food and PPE (Figure 1). Staff also observed people coming together through the online working groups, which evolved in composition and focus over time, to address different, yet equally urgent, priorities concurrently. "We wanted to figure out how we could help create those connections and matchmaking. This was especially true with institutions abruptly shutting down and suddenly all these distributors had food that they had planned to supply these large institutions with, and they were just sitting on it," explained a staff member. "Getting people to quantify their needs, understand and gathering that information, and playing the role of a convener has benefitted the people that come up to the meetings and that are working in communities," noted another.

Tangible Impacts
In the context of the uncertain and changing nature of the COVID-19 pandemic, staff observed that the Rapid Response Effort's strengthening of existing networks and creation of new connections allowed for multiple solutions to emerge through collaborations across various food system sectors (Figure 2). Both staff and nonstaff participants described tangible impacts that came about through connections within the Rapid Response Effort, such as small business support, nonprofit coordination, food box programs, access to cold storage, PPE distribution, and research to identify high-priority needs, as well as the food, infrastructure, funding, or other resources required to meet those needs (Figures 1 and 2).

Governmental Policy Influence
Some interviewees also perceived that the connections made through the Rapid Response Effort allowed for people holding less influence in the food system, such as small-scale producers and community-based organizations, to build power and more effectively influence state or federal policies and programs. For example, CFPAC helped to coordinate a collective statement calling on the USDA to make changes in its emergency-response Farmers to Families Food Box Program to better meet the needs of local communities and small-scale farmers. The Rapid Response Effort also coordinated individuals and organizations to advocate for directing federal funding to communities of color and food businesses led by people of color. This contrasts with traditional emergency programs that outsource food resources without returning any financial investment in communities nor considering the cultural relevance of the foods supplied. In this way, the information exchange and collaboration occurring through the Rapid Response Effort's hub of networks appear to have helped counterbalance dominant power structures in the food system.

Challenges of Equity and Power
The ability of the Rapid Response Effort's collaborative network to counterbalance dominant power structures in the food system was limited, however, by a key challenge that arose within its working groups. CFPAC staff as well as some of the call participants whom we interviewed observed that racial dynamics related to systems of power and hierarchy in society at large arose within the online space, including instances of micro- and macroaggressions.

While CFPAC as an organization prioritized racial equity in its mission, translating that across all the working groups proved difficult. "We had to continuously work through the entrenched institutional racism that exists in the food system," explained a staff member. The staff described two main aspects of the challenge: making sure everyone (especially Black, Brown, and Indigenous leaders) felt safe within the call space and encouraging a balance of self-care and work during the early peak of the COVID-19 pandemic. It is important

Figure 1. Nonstaff Call Participants Described Strengthening or Forming New Network Connections with Other Organizations through the Rapid Response Effort

These collaborations supported specific actions, as noted in the key, to address food system disruptions caused by the COVID-19 pandemic.
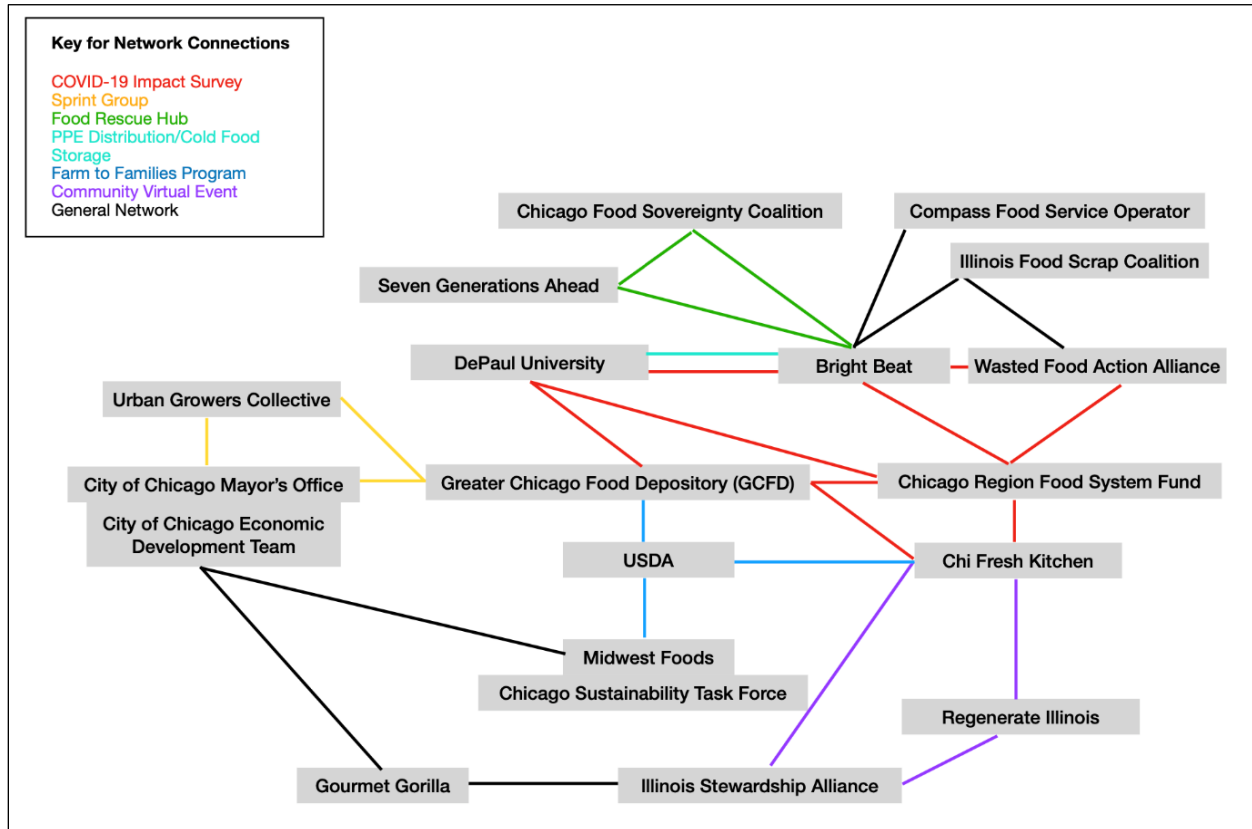
to note that people were emotionally taxed not only by the pandemic. In the summer of 2020, working group calls took place while Black Lives Matter protests occurred in Chicago (and around the country) in response to the murder of George Floyd, a Black man, by a white police officer in Minneapolis.

CFPAC staff intended the working group calls to be a safe, comfortable space for individuals to express concerns and connect with one another. "We have … to operate in a way that creates more racial equity. … I acknowledge that … my White-ness is a place of privilege. That I need to be work-ing in explicitly anti-racist ways to counterbalance all the systemic racism that structures the way in which policy and our city budget, for example, operates," reflected a staff member. Yet, despite staff intentions, the working group calls did not feel safe for everyone.

The white-identifying participants whom we interviewed noted that they felt welcome during the calls, but one participant identifying as a person of color spoke critically about the call space:

> [The calls] showed me that a lot of advocacy organizations need to do a lot more work to be more in tune to the needs of the folks on the ground. … That reflects that they need to do a lot of internal processing: How do they engage with the community? What is their mission? How are they centering the people that they say that they're working with? How are they giving those folks that they say that they work with a space in their decision making? … not just using them as images, or tokenizing their work. … More on the broader side: How are the folks you are serving having part of the decision making of your work? … As a farmer

Figure 2. Network and Outcomes of CFPAC's Rapid Response Effort, as Described by CFPAC Staff Interviewed

Virtual working groups are represented in red/orange, categorical sectors in the regional food system in purple, and perceived impacts in green.
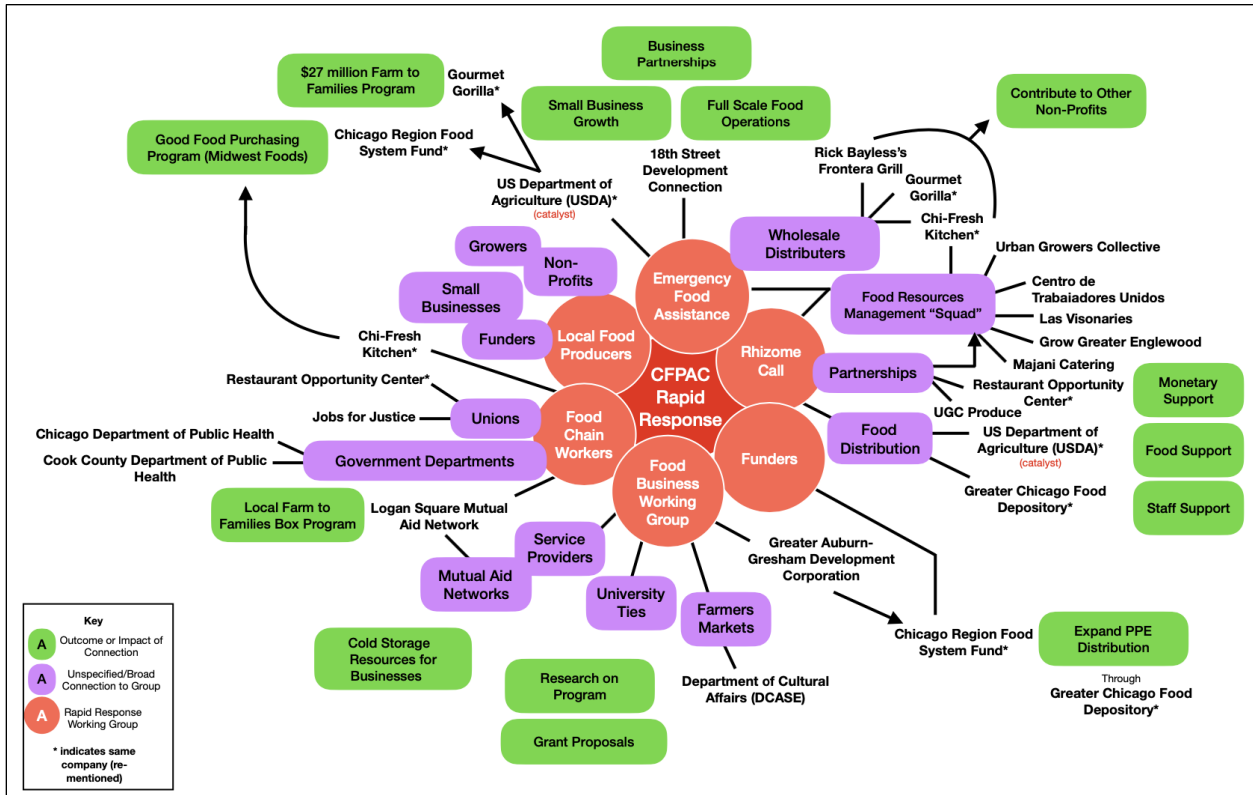
we get reached out a lot by organizations. They want to hear from us, they want to talk to us, and we have great ideas. But you're not compensating me for my time. My ideas and my words will just be used in a research report. It just feels extractive at that point. That is still very much at play, and for me, [I want to be] rooting and really pushing folks that are willing to have a less extractive relationship with the people that we say that we serve.

These concerns helped to reveal discrepancies between the desire to hear from specific groups, such as growers, and insufficient action to address the problems voiced by those groups. This same participant felt that the calls were too focused on large nonprofits and service providers, and as a result, tended to neglect individuals and communities of color, who were less represented in these organizations.

CFPAC responded to such challenges by offering "Interrogating Whiteness" circles open to white-identifying participants to help these participants come with a different conviviality to meetings so that participants of color did not feel uncomfortable or ostracized during the calls. The circles involved virtual discussions about race, Whiteness, and food system equity that occurred twice a month and were facilitated by an outside consultant who specialized in anti-racism. "We've received a lot of messages from people when we have re-centered the conversation on racial equity … because they either were not aware, or they were deeply aware and wanted the issues to be addressed," noted a staff member. "I feel grateful that I was able to participate in something that's developing and shaping the way the others in my group and myself [view that] equity lens," shared a nonstaff participant who took part in the "Interrogating Whiteness" discussions. Yet, staff and the

nonstaff participant who identified as a person of color noted that the need for racial equity training to re-center conversations and shift internal systems of hierarchy and power continues.

Perceptions of Future Direction

Staff and nonstaff participants alike noted the potential to leverage local responses to the macroscale disruptions of the pandemic into opportunities for action toward racial equity and food system resilience in the long term. "What we're really trying to do is sow the seeds of long-term change through our immediate rapid response to the pandemic," reflected a staff member. "A lot of these connections, a lot of these networks that have arisen [built from the effort], are going to outlast COVID," reflected another. Nonstaff participants stated that improved resource distribution and increased information exchange may aid in building a more resilient regional food system that can better withstand future shocks. For example, one nonstaff participant described the Rapid Response Effort's largest impact as "the ability to use the unfortunateness of the pandemic to develop long-term planning for food insecurity in the City of Chicago." Nonstaff participants envisioned continuing work that supports community-driven projects and food enterprises led by people of color, advances policy changes to ensure the safety and livelihoods of food industry workers, and builds the food system's resilience to future shocks, such as another pathogen or climate change impacts. The Rapid Response Effort initially arose to address immediate disruptions due to COVID-19; however, our interviews indicate that the enhanced connectivity it created holds potential to persist and contribute to disrupting racial inequities in the food system over the long term. The Rapid Response Effort has now become the Chicago Food Justice Rhizome Network and continues to meet monthly as of March 2022.

Discussion

Narrative research exploring the process evolution, perceived benefits, and challenges of the CFPAC-facilitated Rapid Response Effort found that a key benefit identified by CFPAC staff and Rapid Response participants interviewed for this study was relationship-building that fostered connections, resource-sharing, and novel solutions as people worked to address the impacts of COVID-19 on the regional food system. Yet, collaborative progress was impeded by hierarchies of privilege and oppression based upon race (and other facets of identity) that, as in society at large, played out within the working groups.

A key reported impact of the Rapid Response Effort was strengthening existing and developing new networks, relationships, and connections across people working in the same food system sector as well as across different sectors and geographic communities. CFPAC's facilitation of the Rapid Response Effort created a hub of networks (Figure 2) responding to immediate needs that interviewees reported led to tangible impacts, such as programs providing culturally relevant emergency food sourced from local farmers, infrastructure provision like cold storage, and PPE distribution to workers. Narratives about the Rapid Response Effort highlighted collaborative network benefits similar to those documented in prior research, including supporting local farmers and grassroots organizations; sharing information, knowledge, and resources; identifying and providing solutions to social problems within communities; and advocating for equity within governmental programs (Dollahite et al., 2005; Laforge et al., 2017; Provan et al., 2005).

Yet, some interviewees raised questions about who held greatest influence within the Rapid Response Effort. As Dollahite et al. (2005) found in the FMNP program discussed in the introduction, we also documented perceptions that unequal resource distribution favored those in dominant social groups, while disadvantaging participants with marginalized social identities. Fair resource allocation in networks can be threatened by an unequal distribution of power (Laforge et al., 2017). In the Rapid Response Effort, societal systems of hierarchy and dynamics of privilege made it difficult to center the voices of people of color in the working group calls. To address this, CFPAC coordinated "Interrogating Whiteness" circles "seeking to dismantle White supremacy by addressing White fragility and breaking White solidarity" (CFPAC, 2020, p. 15). Intentionally creating

opportunities for conversations like these can promote self-reflection and actionable steps for harm reduction by people who hold power due to white privilege.

For equitable collaborative networks, it also is important to monitor how power dynamics may shift over time, especially given that goals, financial resources, and internal structures of individual organizations can change with time, which in turn can affect their roles in the network (Provan et al., 2005). In the Rapid Response Effort, for example, growers' opinions were especially needed in the local food producers working group, but they had little time to give. Unlike staff in nonprofit organizations or government agencies, attending working group calls did not fall within growers' compensated jobs and took time away from earning their livelihoods growing food, as the grower whom we interviewed explained. As Miller and McCole (2014) note, more strategic approaches need to be developed to allow for the most highly affected stakeholders to contribute and offer ideas or critiques in collaborative networks.

Our results highlight an important focus for future research and practice: how to overcome racism in the collaborative networks that support local and regional food system movements. Potential areas of inquiry include acknowledgement of white privilege, equitable resource distribution, and building community power through network connections. How does white privilege control who speaks, who listens, and who gets recognition in collaborative networks? How might anti-racism training for white-identifying participants shift these dynamics? What does equitable resource distribution look like and how can that be maintained in a food system? How are networks supporting historically marginalized communities to build power, influence policy, and reclaim local food systems?

Answering these questions will require collaboration between researchers and practitioners. As one of our interviewees noted, however, these relationships often feel extractive to people working on the ground in local communities. It is important that researchers investigating how to overcome power inequities related to race (and other social identities) in collaborative food system networks

center the voices of people affected by oppression, compensate them for their time, and recognize them for the knowledge they contribute. Ideally, research would be codesigned to ensure its mutual benefit to participants and researchers. Indeed, our present study would have benefited from adhering better to this guidance. We codesigned the study with CFPAC and communicated the results back to them for their practical use. However, we did not have funding to compensate participants in the study, and this likely influenced who was able to take part. We endeavor to follow this guidance in all of our future work and encourage other researchers to do the same.

Conclusion

The COVID-19 pandemic disrupted food systems at multiple scales resulting in hunger, increased food insecurity, and loss of livelihoods, among other impacts. In the Chicago region, the CFPAC-facilitated Rapid Response Effort strengthened and expanded collaborative networks across food system sectors and geographic communities to enable swift actions addressing immediate crises, such as emergency food and PPE distribution. Our analysis across 10 narratives about the Rapid Response Effort illustrates the importance of collaborative networks in not only responding to food system disruptions directly and through policy advocacy, but also building a foundation for longer-term, systemic change. As working groups sought to address the external challenges caused by the pandemic, internal challenges arose due to dynamics of privilege and oppression related to racial identities. Conversation circles intentionally designed for white-identifying participants to learn about white supremacy and engage in self-reflection helped to re-center racial equity in alignment with CFPAC's mission but have not entirely resolved power disparities. Future research on collaborative networks in food systems should attend to power dynamics related to race and social equity. Developing equitable, non-extractive partnerships holds exciting potential for creating local-level solutions that reimagine and transform the neoliberal food system. Food researchers and scholars need to engage more with communities of color as a part

of the solution to this issue. Some suggestions for researchers and scholars are creating lasting ties with BIPOC communities, more participatory research involving indigenous or local knowledge methodologies, and financial or other forms of compensation for taking part in a study.

References
Alkon, A. H. & Agyeman, A. (Eds.). (2011). Cultivating food justice: Race, class, and sustainability. MIT Press.

Aday, S., & Aday, M. S. (2020). Impact of COVID-19 on the food supply chain. *Food Quality and Safety*, *4*(4), 167–180. https://doi.org/10.1093/fqsafe/fyaa024

Block, D. R., Chávez, N., Allen, E., & Ramirez, D. (2012). Food sovereignty, urban food access, and food activism: contemplating connections through examples from Chicago. *Agriculture and Human Values*, *29*(2), 203–215. https://doi.org/10.1007/s10460-011-9336-8

Benton, T. G. (2020). COVID-19 and disruptions to food systems. *Agriculture and Human Values*, *37*(3), 577–578. https://doi.org/10.1007/s10460-020-10081-1

Broad Leib, E. M., Ardura, A. & Beckmann, J. (2021). *An evaluation of the Farmers to Families Food Box Program*. Food Law and Policy Clinic, Harvard Law School, and the National Sustainable Agriculture Coalition. https://chlpi.org/wp-content/uploads/2013/12/F2F-Food-Box-Report-Online-Final1.pdf

Celis Carbajal, P. (2020, September 29). *From Hispanic to Latine: Hispanic Heritage Month and the terms that bind us*. New York Public Library Blog. https://www.nypl.org/blog/2020/09/29/hispanic-heritage-month-terms-bind-us

Centers for Disease Control and Prevention. (2022, June 24). *Hospitalization and death by race/ethnicity*. https://www.cdc.gov/coronavirus/2019-ncov/covid-data/investigations-discovery/hospitalization-death-by-race-ethnicity.html

Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. Sage.

Chicago Food Policy Action Council [CFPAC]. (2021, February 2). *Call on USDA to revise Farmers to Families Food Box Program and prioritize community needs*. Chicago Food Policy Action Council. https://www.chicagofoodpolicy.com/blog/2021/2/2/9uvqw8rnqdpzrq0wfzzhvddaong1xx

CFPAC. (2020). *Annual report 2020*. https://static1.squarespace.com/static/5a8c555751a5846fc4c22984/t/606f8216eb6df93a2889f12a/1617920544655/CFPAC+2020+Annual+Report.pdf

City of Chicago, Office of the Mayor. (2021, June 24). *Mayor Lightfoot and community leaders release food equity agenda for Chicago* [Press release]. https://www.chicago.gov/city/en/depts/mayor/press_room/press_releases/2021/june/FoodEquityAgenda.html

Coleman-Jensen, A., Rabbitt, M. P., Gregory, C. A., & Singh, A. (2019). *Household food security in the United States in 2019*. U.S. Department of Agriculture Economic Research Service. https://www.ers.usda.gov/webdocs/publications/99282/err-275.pdf?v=8926.9

Dollahite, J. S., Nelson, J. A., Frongillo, E. A., & Griffin, M. R. (2005). Building community capacity through enhanced collaboration in the farmers market nutrition program. *Agriculture and Human Values*, *22*(3), 339–354. https://doi.org/10.1007/s10460-005-6050-4

Forester, J., Peters, S., & Hittleman, M. (2005). *Profiles of practitioners: Practice stories from the field*. Cornell University. https://courses2.cit.cornell.edu/fit117/index.htm

Harry, B., Sturgis, K. M., & Klingner, J. K. (2005). Mapping the process: An exemplar of process and challenge in grounded theory analysis. *Educational Researcher*, *34*(2), 3–13. https://doi.org/10.3102/0013189X034002003

Hobbs, J. E. (2020). Food supply chains during the COVID-19 pandemic. *Canadian Journal of Agricultural Economics/Revue canadienne d'agroeconomie*, *68*(2), 171–176. https://doi.org/10.1111/cjag.12237

Horst, M., Marion, A. (2019). Racial, ethnic and gender inequities in farmland ownership and farming in the U.S. *Agriculture and Human Values*, *36*, 1–16. https://doi.org/10.1007/s10460-018-9883-3

Klassen, S., & Murphy, S. (2020). Equity as both a means and an end: Lessons for resilient food systems from COVID-19. *World Development*, *136*, 1–4. https://doi.org/10.1016/j.worlddev.2020.105104

Kolak, M., Bradley, M., Block, D. R., Pool, L., Guarang, G., Kelly Toman, C., Boatright, K., Lipiszko, D., Koschinsky, J., Kershaw, K., Carnethon, M., Isakova, T., & Wolf, M. (2018). Urban foodscape trends: Disparities in healthy food access in Chicago, 2007-2014. *Health & Place*, *52*, 231–239. https://doi.org/10.1016/j.healthplace.2018.06.003

Laforge, J. M. L., Anderson, C. R., & McLachlan, S. M. (2017). Governments, grassroots, and the struggle for local food systems: containing, coopting, contesting, and collaborating. *Agriculture and Human Values*, *34*, 663–681. https://doi.org/10.1007/s10460-016-9765-5

Lawrence, K. & Keleher, T. (2004). *Structural racism*. Race and Public Policy Conference. https://www.intergroupresources.com/rc/Definitions%20of%20Racism.pdf

Lofton, S., Kersten, M., Simonovich, S. D., & Martin, A. (2021). Mutual aid organizations and their role in reducing food insecurity in Chicago's urban communities during COVID-19. *Public Health Nutrition*, *25*(1), 119–122. https://doi.org/10.1017/S1368980021003736

Lunsford, L., Artur, M. L., & Porter, C. M. (2021). African and Native American foodways and resilience: From 1619 to COVID-19. *Journal of Agriculture, Food Systems, and Community Development*, *10*(4), 241–265. https://doi.org/10.5304/jafscd.2021.104.008

Maxwell, J. A. (2005). *Qualitative research design: An interactive approach*. (2nd ed.). Sage.

McGuire, J., Morton, L. W., Cast, A. D. (2013). Reconstructing the good farmer identity shifts in farmer identities and farm management practices to improve water quality. *Agriculture and Human Values*, *30*, 57–69. https://doi.org/10.1007/s10460-012-9381-y

Miller, C. L., & McCole, D. (2014). Understanding collaboration among farmers and farmers' market managers in southeast Michigan (USA). *Journal of Agriculture, Food Systems, and Community Development*, *4*(4), 71–95. https://doi.org/10.5304/jafscd.2014.044.003

Morales, D. X., Morales, S. A., & Beltran, T. F. (2021). Racial/ethnic disparities in household food insecurity during the COVID-19 pandemic: A nationally representative study. *Journal of Racial and Ethnic Health Disparities*, *8*, 1300–1314. https://doi.org/10.1007/s40615-020-00892-7

Morgan-Fleming, B. (2007). Narrative inquiry in the professions. In D. J. Clandinin (Ed.), *Handbook of narrative inquiry: Mapping a methodology* (pp. 355–356). Sage.

Nelson, M. (2020, September 21). *Food insecurity on the rise Across US, Chicago amid COVID-19*. WTTW. https://news.wttw.com/2020/09/21/food-insecurity-rise-across-us-chicago-amid-covid-19

Noguchi, Y. (2020, September 10). *'I try so hard not to cry': Nearly half of U.S. households face a financial crisis*. NPR. https://www.npr.org/sections/health-shots/2020/09/10/910724801/overview-of-poll-data-on-pandemics-damage

Obach, R., & Vaca, P. (2021). *Equity-centered research on Chicago Food Policy Action Council's COVID-19 Rapid Response Effort*. 2021 Undergraduate Research and Engagement Symposium, Loyola University Chicago. https://ecommons.luc.edu/ures/2021/2021/47/

Ospina, S. M., & J. Dodge. (2005). It's about time: Catching method up to meaning - The usefulness of narrative inquiry in public administration research. *Public Administration Review*, *65*(2), 143–157. https://doi.org/10.1111/j.1540-6210.2005.00440.x

Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). Sage.

Provan, K. G., Veazie, M. A., Staten, L. K., Teufel-Shone, N. I. (2005). The use of network analysis to strengthen community partnerships. *Public Administration Review*, *65*(5), 603–613. https://doi.org/10.1111/j.1540-6210.2005.00487.x

Tendall, D. M. et al. (2015). Food system resilience: Defining the concept. *Global Food Security*, *6*, 17–23. https://doi.org/10.1016/j.gfs.2015.08.001

U.S. Department of Agriculture Economic Research Service [USDA ERS]. (2022, March 15). *Demographic characteristics of hired farmworkers*. https://www.ers.usda.gov/topics/farm-economy/farm-labor/#demographic

Zhan, Y., & Chen, K. Z. (2021). Building resilient food system amidst COVID-19: Responses and lessons from China. *Agricultural Systems*, *190*, 1–7. https://doi.org/10.1016/j.agsy.2021.103102

Critical food policy literacy: Conceptualizing community municipal food policy engagement

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Abstract

Food policies should be informed by those whom they intend to serve, but policy-making processes remain exclusive to privileged voices, knowledge, and experiences. Food activists, organizations, and academia have worked to make policy processes inclusive through training communities in food policy, potentially increasing their food policy literacy (FPL). In this paper, I argue that making food policy processes, information, and training accessible to community actors can better prepare them to participate in, interpret, and control food system policies, especially at the municipal level. I build on the premise that a clear understanding of food policies is a necessary (if not sufficient) condition for community engagement in food systems policy formulation, planning, and implementation. Existing literature has thoroughly defined food literacy (FL) and policy literacy (PL), but there has been very limited work on defining "food policy literacy." To address this conceptual gap, this article bridges food and policy scholarship with the critical literacy work of Paulo Freire to answer: How do we understand literacies tied to food policy? What does (or what could) it mean to be food policy literate? How can critical literacy tied into food policy transform food systems? Following this analysis, I propose critical FPL is a 'reading of the world and of words,' a critical awareness of food policy processes, a contextual and authentic learning practice, and a collective engagement with food policy transformation.

Keywords

Critical Food Policy Literacy, Food Policy Literacy, Critical Literacies, Food Literacy, Food Policy, Policy Literacy, Food System Participation, Participatory Policy, Municipal Food Policies, Participatory Food System Planning

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Introduction

The term "literacy" has been defined variously in the scholarly literature, both as an ability to read and write at a specific school level and as the knowledge and competencies that enable a person (or a collective of people) to act (Hillerich, 1976). According to Lewison et al., (2002), critical literacies involve four dimensions: "disrupting the commonplace, interrogating multiple viewpoints, focusing on sociopolitical issues, and taking action to promote social justice" (p. 382). Numerous scholars, like Paulo Freire, bell hooks, and Ira Shor, have proposed the idea of "critical literacies" beyond school competency that involve broader concerns such as justice. The concept has also been developed in the scholarly work of Voloshinov, Brecht, Hoggart, and Williams and in the poststructuralist theories of Foucault and Derrida (Luke, 2012).

As one of the main proponents of critical literacies, Freire (1985) proposed *conscientização*, or critical-consciousness-raising (Takeda, 2022), as an "awareness of how people are in and with the world" to "negotiate the world in which they find themselves" (Freire, 2018, p. 1). To Freire, this awareness is understanding "how institutions of power work to deny equality of treatment, access, and justice" (Freire, 2018, p. 17). He argued that the oppressed benefit from becoming literate if it allows them to read both the *word* and the *world*, and to confront the culture of domination by reflecting and creating a praxis of liberation through which they retake their right to "say their own word and think their own thoughts" (Freire, 1970, p. 126). Drawing from Freire, I consider critical literacies as tools for counter-hegemonic awareness, agency, self-determination, civic engagement, and freedom, rather than as a "domestication" that allows for the job readiness and social productivity that society expects (Freire, 1976). Moreover, in alignment with these critical literacies, I suggest that a "critical awareness," a "confrontation of the culture of domination," and a "praxis of liberation" designed by those most oppressed by food system inequities, ultimately enacts the community-aspired food systems.

In this paper, I propose principles for the conceptualization of critical food policy literacy (FPL) by mapping scholarship that unpacks how critical literacy about food policy is defined and understood, with particular attention to its effect in municipal-scale food systems policy. This review is not intended to be exhaustive. Rather, it is designed to foster readers to recognize the importance of making spaces for communities to first become aware and learn, and then engage in food policy transformations. I do not advocate for a standardized, prescribed, and measured definition of FPL, but rather I shed light on the conceptualization of FPL as a tool for community organizing, education, and planning.

Overall, the scale of food-related knowledge spans from the "micro-scale" (proteins, fats, carbohydrates, and minerals) to the "macro-scale" (social, environmental, economic, and political action) (Fuster, 2014). The multi-scalar nature of food-related knowledge influences how people understand and engage with food, including food policy (Moragues-Faus & Sonnino, 2019). Nevertheless, across these multiple scales "power/knowledge" (Foucault, 1980) dynamics are created when people are ascribed as (il)literate on issues around food and food policies. Indeed, structural inequities impact how much people know about and engage with food policies. I build on the premise that people's clear understanding of food policies is a necessary, if insufficient, condition for community engagement in food systems policy formulation, planning, and implementation.

While policy literacy (PL) and food literacy (FL) are broadly defined in the scholarly literature, there has been very limited work on defining food policy literacy (FPL). If these concepts were to remain separate, PL without food, or FL without policy could leave power and knowledge imbalances out of food system transformation agendas. A critical lens for the existing power/knowledge asymmetries in food policy processes suggests that FPL must be accessible to people, especially those who are marginalized by public policies and often blamed for their food conditions. Knowledge plays a political organizing role, but clear understanding of what it means to be knowledgeable about food policy is still necessary. A lack of clarity or consensus about concepts tied to food policy (i.e., FPL) allows for the co-opting of policy by actors with vested interests (Andrée et al., 2015; Siddiki et al.,

2015). Questions of power/knowledge, agency, re-sources, and authority must be addressed in food systems transformation, but so must power over information, access to policy resources, and control over definitions (Frimpong Boamah et al., 2020; Sumner, 2015).

Without clear conceptualization of critical FPL, processes of food policy training, education, and participatory planning might not be appropri-ately addressed. Likewise, without this conceptual clarity food system planning research and related fields will lack effectiveness in supporting much-needed community-led food systems transfor-mations that reach beyond consumer choice alter-natives (Andrée et al., 2015; Cuy Castellanos et al., 2017; Meek & Tarlau, 2016) and solutions concep-tualized by the corporate food regime (Holt Giménez & Shattuck, 2011). Planning has an ideal interdisciplinary character for the conceptualization of FPL because it plays an intermediary role be-tween policy and knowledge generated by other fields of research and activist experiences. As a pol-icy- and system-oriented discipline, planning can help conceptualize FPL from both a food policy and system perspective.

Extending the idea of food policy literacy be-yond agricultural literacy (Dale et al., 2017), nutri-tion literacy (Velardo, 2015), and food agency (Trubek et al., 2017) allows room for the consider-ation of food's broader role as a vehicle for learn-ing across the food system. A critical awareness of the food system and its policies could result in more structural food policy transformations. More-over, moving away from a historical, apolitical, and individual behavior-centered literacies makes it possible to address prevailing neoliberalizations of the corporate food system (Guthman, 2008). Exist-ing critical approaches to food literacy take many forms (Cullen et al., 2015). For example, some scholars propose critical food literacies to raise awareness of food workers across the food system through multicultural texts (Yamashita & Robinson, 2016), critical food system literacy within environmental education (Rose & Lourival,

2019), and critical food system education as a polit-ical project that contributes to the global food sov-ereignty movement (Meek & Tarlau, 2016).

Food policies and food policy processes must be defined by the communities' food transfor-mation goals, especially at the governmental level closest to the particular communities. Recently, at-tention toward food policy has been growing in part from food activists, local food policy coun-cils, and organizations engaged in food systems transformation.[1] Over the last two decades, mu-nicipal-scale food policy has gained increasing at-tention from policymakers, international organiza-tions, and community food activists (Cabannes & Marocchino, 2018; Raja, 2021). Community or-ganizations transforming the food system are also increasingly interested in policy changes (Raja et al., 2014; Roberts, 2014). The aim of this article, then, is to build on existing literature to conceptu-alize critical FPL and explicitly focus on munici-pal-level food policies.

The conceptualization of FPL developed in this paper might appear similar to the concept of food citizenship (Gómez-Benito & Lozano-Cabedo, 2014). Nevertheless, FPL should not be limited to "rights-holding subjects," nor be bound to the duties and obligations that citizenship en-compasses (Benito & Lozano-Cabedo, 2014, p. 141). Instead, FPL heeds questions of power im-balances in learning how to engage with or create food policies. It "[supports] learners to become aware of the [food system] forces that have pivoted to rule their lives and especially shape their con-sciousness" (Freire, 2018, p. 9). FPL enables and potentiates food citizenship.

This paper proceeds as follows. First, I intro-duce the methodological approach for conceptual-izing critical FPL through the "family resem-blance" of food literacy and policy literacy. Second, I provide an overview of selected literature, and ex-plore the conceptual characteristics shared between policy literacy and food literacy, as well as their re-spective approaches to critical literacies. Third, I contextualize these concepts at the municipal food

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[1] For example, Food Strategies and Official Community Plans are two forms of food policies (i.e., in Canada and UK) at the scale of municipal government. These policies demonstrate ways in which coordinated approaches to food system policies can provide com-prehensive solutions (Mah & Thang, 2013; Robert & Mullinix, 2018).

policy level. Fourth, I suggest causes of the limited conceptualization of FPL in the current literature. Finally, I delineate five critical FPL principles by drawing from Freire's work on critical literacies, which conceptualizes a literacy that increases community-led food system policy transformations.

Methods: Literature Review Strategies

The ideas in this literature review are drawn from an examination of peer-reviewed literature. The primary databases utilized to retrieve the literature were Web of Science, JSTOR, and Google Scholar. Articles were searched using several key phrases pertinent to food policy literacy.[2] Articles in English and published in peer-reviewed journals 1990–2021 were included (from any region). Ultimately, forty articles were reviewed and analyzed. Articles were broadly drawn from the following two domains: (a) food scholarship that deals with food literacy (FL), food policy, and food systems, and (b) policy scholarship dealing with policy literacy (PL). These two bodies of scholarship in combination with critical (food/policy) literacy scholarship were reviewed to elucidate five key principles of critical food policy literacy.

Conceptual Definitions from Food and Policy Scholarship

Scholarship from varied disciplinary perspectives was used to unpack FPL. The forty articles reviewed for this essay span FL, food policy, and food systems education to PL more generally. Articles on FL deal mostly with measuring it in adults (Amouzandeh et al., 2019), the effects of FL in dietary outcomes in youth and adolescents (Bailey et al., 2019; Vaitkeviciute et al., 2015), design of FL tools for secondary schools (Nanayakkara et al., 2017); and assessment tools measuring FL (Park et al., 2020; Vidgen & Gallegos, 2014). Articles on food policy focus on how governance entities, such as food policy councils, tackle food policy in com-

bination with other public issues to carve out new food policy agendas (Maxwell & Slater, 2003; Siddiki et al., 2015). Articles on food system education emphasize progressive pedagogical approaches, including action research (Hilimire et al., 2014) and critical food system education (Meek & Tarlau, 2016). Articles on PL span media studies (Lentz, 2014), public administration (Park & Lee, 2015), literacy studies (Lo Bianco, 2001), disability and rehabilitation studies (Ohajunwa et al., 2019), and social and informational digital privacy studies (Smith et al., 2017).

Despite this growing body of literature, research that explicitly addresses literacy in the context of food policy is limited. Only one article explicitly references "food policy literacy": Hilimire et al. (2014) present FPL as one of many practical skills in sustainable food system education programs. The authors identify food policy literacy as an "industry-specific skill" (Hilimire et al., 2014, p. 730), but do not detail how such a skill is defined, acquired, by whom, nor to what end.

By connecting literature on general PL with FL, I intend to clarify the concept of (critical) food policy literacy. Policy literacy and food literacy are related concepts. Drawing on the work of Rosch & Mervis (1975), PL and FL can be said to have a "family resemblance": a relationship "consisting of a set of items of the form AB, BC (...) where each item has at least one, and probably several, elements in common with one or more other items, but no, or few, elements are common to all items" (p. 575). Identifying shared elements between concepts or items in the literature supports conceptualization of new or undefined concepts. Podsakoff et al. (2016) suggest that a "good conceptual definition should identify the set of fundamental characteristics or key attributes that are common (and potentially unique) to the phenomenon of interest" (p. 7), a charge that I seek to address with regard to critical FPL.

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[2] The main search terms, used both separately and in combination, included "food," "policy," "literacy," "system." Additional keywords selected from the initial search were included in the main search terms: "activism," "adult," "advocacy," "campaign," "decision-making," "education," "effective policy," "engagement," "equity," "evaluation," "food democracy," "food policy council," "formation and implementation," "impact," "justice," "local policies," "outcomes," "participation," "pedagogy," "planning," "politics of food," "readiness," "training," and "youth." Articles were excluded if they dealt with the following topics: medical and clinical studies, dietary assessments, health literacy, agricultural literacy, marketing of unhealthy food, curriculum policy, communication technologies, and urban design.

The next section reviews the scholarship on PL and FL to identify the set of shared elements that characterize each concept. Identifying these shared characteristics elucidates core principles to conceptualize a critical FPL that supports community-led food system transformation.

How Does Scholarship Define Policy Literacy?

Scholars from various fields, including education, communications, digital privacy, disability studies, and government innovation studies, have defined the concept of policy literacy. Scholars support the importance of increased literacy in policy to fulfill the democratic potential of society. In the review, I found a limited breadth of articles defining PL. Nevertheless, the articles provide valuable information on PL education, strategies to examine policies through personal/emotional experiences, and how PL can lead to policy engagements beyond the formal policy process. Policy literacy generally consists of four thematic areas: (a) critically informed engagement, (b) going beyond passive government services awareness, voting, and conscientious consuming of information, (c) instructed through the examination of local policies, (d) acquired through situated practice.

Critical understanding of policies is needed for informed policy engagement: Media communication scholars view PL as a "counterweight to neoliberal media education agendas" (Lentz, 2014, p. 137) that can challenge digital media and communications platform companies' deregulation and liberalization aims (see Flew et al., 2019). Scholars consider PL a "precondition for informed engagement," particularly for those advocating for the public interest (Lentz, 2014, p. 138). Lo Bianco's widely cited definition describes PL as that which is "needed to deploy, participate, and understand policy events…critical understanding of the process, history, and dilemmas of the overall practice of public policymaking to contribute towards a more reflective and full participation in its processes" (Lo Bianco, 2001, p. 213). It is the ability to identify and understand policies through information and knowledge and is critical for participation and democracy. Thus, PL is both a precondition for a fuller, more reflective engagement in, or resistance to, policy processes.

Going beyond knowing about available government services, voting, and conscientiously consuming information: Policy literacy scholarship suggests that being policy literate goes beyond passively being aware of government services, voting, and conscientiously consuming information. Some scholars argue rather narrowly that PL can be measured by how much the public knows about government service programs (Park & Lee, 2015). In contrast, scholars in the field of communication and digital media argue that PL reaches beyond simply knowing about the extent and types of services provided by governments. Policy literacy is an empowering and dynamic strategy that has the potential to equip society with the "capacity to produce policy change" (Lentz, 2014, p. 136). Lentz (2014) points to PL as the "best defense against threats to democratic media" (p. 135) since it gives individuals a "sense of citizenship beyond voting or conscientious consumption" of media products (p. 137).

Instructed through examination of local policy documents, with lived experiences to support authentic learning: Scholars have explored the teaching of PL through practice-based learning and the examining of local policy documents. Ohajunwa et al. (2019) provide a detailed empirical example of a formal adult education program designed to enhance PL in disability and rehabilitation work. The course was structured in three sections: policy analysis, implementation, and monitoring. The course encouraged students to critically examine local government policy documents in terms of "aims, discourse, dominant/silenced voices, intended audience, text, and subtext, language used, the context of the formation and possible negotiations made" (p. 35). The course analyzed already enacted policies and motivated students to reflect on what might have informed policy planning and implementation.

The authors note that students perceived PL learning as foreign, as imposed instead of something they had a role in shaping. The authors believe the gap between policy and student expectations of policy outcomes existed because "policies are formed in spaces removed from the realities of implementation and the inequalities that inform them" (p. 39). To bring policy closer to students, the course used three main methods to enhance

PL: "situated learning, collaborative problem solving, and goal-based scenarios" (p. 38). In addition, the course motivated students to critically examine policies with their personal/emotional experiences to ensure policy discussions centered on what students cared about and their sense of self. This work suggests that policy awareness is possible when PL education allows for "a contextualization of learning so that the policy context itself and the [learner's] personal, social, political, and cultural experiences are constructed within a… framework that supports authentic learning" (p. 39).

Acquired through participation in situated policy-making processes: Scholars suggest PL is better achieved when people participate in situated policy-making processes and learn about the tensions, power-struggles, and non-linearity of the processes. Centering the idea of real participatory democracy, Lo Bianco (2001) focuses on the knowledge needed to make policymaking democratic, viewing the policy-making process as the "main vehicle in democratic societies for establishing authorized intervention and determining resource allocation" (p. 213). He sees PL continually in tension between "'policy' (power) and 'information' (knowledge)", and influenced by language and culture, and by the claims made by various stakeholders' legitimacy to act in policymaking (p. 214). These factors make the policy process "nonlinear and embedded within changing socio-historical contexts" (Breckwich Vásquez et al., 2007, p. 344). Breckwich Vázquez et al. (2007) suggest that steps in the policymaking process, which shape policy content, course, pace, and development, and even contributing to policy success, generally consist of "problem definition or identification of an issue; setting the agenda; deciding on the policy to pursue, and policy implementation" (p. 344).

Policymaking processes are not exempt from power struggles. Lo Bianco (2001) gives special attention to power struggles between private sectors and the government. He proposes that "informed kinds of policy activism" are needed to minimize the impacts of policies that shift "national effort towards the private sector" while reducing government activity intended to serve communities (p. 213). In other words, PL scholars suggest that

place-based activism and other "unofficial" policy actions are necessary efforts against neoliberal policies, especially if the official policymaking process and policy outcome burden disadvantaged communities (Ilieva, 2020). Therefore, to be policy literate is not only to conform to existing policy procedures, steps, and structures, but also to challenge existing structures and transform them into "people's policy processes" (Rose & Lourival, 2019).

How Does Scholarship Define Food Literacy?
The term "food literacy" has gained global momentum, with Thompson et al. (2021), for example, identifying 51 definitions of FL. Conceptualizations of FL in the literature vary greatly. Some scholars offer rather individualistic and narrow definitions while others offer more systemic (and even critical) explanations. This section provides examples of the diverse set of definitions as well as critiques of current FL conceptualizations and their exclusion of 'policy.'

Implies individual-level knowledge, skills, and behaviors: Food scholarship has highlighted the importance of FL at the individual level, with some scholars defining FL as the personal "knowledge, skills, and behaviors required to access, select, prepare, and eat foods" (Velardo, 2015, p. 387), the skills required to interpret front-of-package nutrition labeling (Feteira-Santos et al., 2020), and "the behaviors involved in planning, purchasing, preparing and eating food; critical for achieving healthy dietary intakes" (Begley et al., 2018, p. 1).
Adapts to changing circumstances throughout life: Scholars note that FL is dynamic and adaptive, "developed over a person's life and adapted to changing circumstances, such as moving out of home, changing household size (i.e., the birth of children), economic circumstances (i.e., changing income levels) and lifestyle factors (i.e., diagnosis of a lifestyle-related disease such as diabetes or high blood pressure)" (Begley et al., 2018, p. 12). Rather than being static, FL adapts to changing circumstances.

Consumer awareness of processes, information, and activities in the food system: Fernandez et al. (2020) suggest that FL enables people to navigate the process of selecting, preparing, and consuming nutrient-rich

food. A more expansive view is offered by Pa-lumbo et al. (2019), the "ability to collect, under-stand, process, and use relevant information to navigate the food system" (p. 104). Other scholars list the food system as one of the key themes of FL. Based on a review of 67 articles, Truman et al. (2017), for example, characterize FL by six central themes: (a) skills and behaviors, (b) food/health choices, (c) culture, (d) knowledge, (e) emotions, and (f) food systems. Rose and Lourival (2019) propose considering critical food system literacy to be a dialectic counterhegemonic project to democ-ratize the food system.

Can food literacy expand beyond meeting needs for individ-ual consumer food intake? One of the most cited FL definitions is by Australian researchers Vidgen and Gallegos (2014), whose work is frequently refer-enced for food literacy program assessments in Australia, France, Netherlands, Italy, and the U.S. (Amouzandeh et al., 2019). They define food liter-acy as the "scaffolding that empowers individuals, households, communities or nations to protect diet quality through change and support dietary resili-ence over time" and "a collection of interrelated knowledge, skills, and behaviors required to plan, manage, select, prepare, and eat foods to meet needs and determine (food) intake" (p. 54). They suggest that FL tends to contribute to beneficial outcomes beyond nutrition and what they specify as the four domains of planning and managing, se-lecting, preparing, and eating, although they do not indicate which outcomes or how. Policy is not ex-plicitly discussed.

Critiques of Current Food Literacy Conceptual Definitions and the Exclusion of Policy

Scholars have demonstrated inconsistencies in the literature as to how food literacy is understood and defined (Bailey et al., 2019; Perry et al., 2017; Rosas et al., 2021; Sumner, 2015; Thompson et al., 2021). Sumner (2015) argues that the lack of consensus about FL is problematic, as "various stakeholders maneuver to control its meaning and thus mold policy that will serve their interests" (p. 128). Other scholars note that lack of consistency in FL defini-tions limit the development of a valid and reliable measure for effective evaluations of programs that

seek to promote FL (Bailey et al., 2019). Sumner (2015) suggests that a potential explanation for lack of consensus is in the contested origins of "food" and "literacy," as both deal with power: "restricting food literacy to household attitudes, skills, and knowledge narrows the parameters of the food lit-eracy debate and serves certain powerful interests, while disabling the broader critique necessary to transform the crisis-ridden global food system into one that will ensure everyone is fed, within the eco-logical limits of the planet" (p. 129). Therefore, she suggests, it is crucial to ask: What do people know by becoming food literate? And who benefits or loses when a particular definition of FL becomes the norm? Sumner (2015) draws on Freire's work to broaden the idea of FL beyond simply holding individuals responsible for the purchasing, safety, and budgeting of food:

> The ability to "read the world" in terms of food, thereby recreating it and remaking our-selves. It involves a full-cycle understanding of food—where it is grown, how it is produced, who benefits and who loses when it is pur-chased, who can access it (and who can't), and where it goes when we are finished with it. It includes an appreciation of the cultural signifi-cance of food, the capacity to prepare healthy meals and make healthy decisions, and the recognition of the environmental, social, eco-nomic, cultural, and political implications of those decisions. (Sumner, 2013, p. 86)

Similarly, Stinson (1998), as cited in Sumner (2015), suggests FL should be a tool to enact citi-zenship by enhancing "critical thinking skills neces-sary to analyze the interrelated aspects of the food system" (p. 24), allowing people a "heightened un-derstanding of the connection between food, themselves, and the wider world" (p. 41). Sumner (2015) attempts to expand the definition of FL in a manner that approaches conceptualizing food pol-icy literacy, asserting that efforts to promote FL should also integrate policy. Likewise, Rosas et al. (2021) and Rowat et al. (2021) note that policy has been left out from previous FL conceptualizations. Rosas et al. (2021) suggest that policy should be considered an influential factor in FL (i.e., regula-

tion to promote healthy consumption). Similarly, Rowat et al. (2021) include policy and economics as components of the political dimension of their FL framework. Rowat et al. (2021) state that to change the "political and economic machinations [that] allow large food corporations to dominate the food landscape by monopolizing markets and influencing nutrition research," an educated population literate in the political and economic underpinnings of the food system is required (p. 2). These scholars embed policy in the concept of FL. I argue that food policy literacy allows for an explicit claim for this knowledge gap—that is, what does it mean to be literate on food policy—and I suggest municipal-level food policies as an important space for the conceptualization of FPL.

Food Policy Literacy and Municipal Food Policies

Municipal-level food policies are increasingly a central tool in strengthening local food policy transformations (Candel, 2020; Morley & Morgan, 2021) and decentralizing food policy processes so as to serve localized community needs. Communities learn through their practice how their respective municipal food policies are nested in multilevel governance structures and are interrelated with other kinds of policies (Raja et al., 2014, 2018). Examples of municipal-level policies include (a) soft policies (resolutions, declarations, studies, etc.); (b) plans (including official plans such as comprehensive food system plans, plans for a component of the food system, and food plans integrated with comprehensive plans, as well as open space plans, community health plans, sub-area plans and strategic plans, etc.); (c) legally enforceable ordinances, bylaws, and regulations (zoning ordinances, subdivision guidelines, etc.); (d) actions that provide physical infrastructure; (e) fiscal enactments that influence community food systems (food system funds, licenses and fees, etc.) (Mui et al., 2018; Raja et al., 2018). Municipal food policies have been increasingly innovative in governance

structures through creating food policy councils—civic or quasi-public organizations that develop context-sensitive, locally informed policy processes concerning food—(Gupta et al., 2018), hiring food planning staff, and supporting interagency task forces by, for example, joining the planning and public health fields (Mui et al., 2018). The growing interest in municipal-scale food policy is especially evident through the increasing number of food policy councils in the United States and Canada.[3]

Consequent to initiatives by community actors, hundreds of municipal, county, and regional governments have developed food and agriculture plans and policies intended to strengthen food systems, as identified by the Growing Food Connections (GFC) team.[4] For example, non-governmental organizations such as DC Greens[5] have helped to pass legislation such as the DC Farmers' Market Support Act, the Urban Farming and Food Security Act, and the Healthy Schools Act. Moreover, since 2015 hundreds of cities have signed the Milan Urban Food Policy Pact, a voluntary pact that urges municipalities to engage in integrated food policies (Sibbing & Candel, 2021).

Despite growth in municipal food policy institutions and venues that may become learning hubs and places to exchange information about how to strengthen, contextualize, and transform food systems, food policy processes and policy tools (as the examples mentioned earlier) remain foreign for many communities (Clark et al., 2017; Coplen & Cuneo, 2015; Schiff, 2008). FPL is impeded by limited access to usable or comprehensible information and spaces for communities in policy decision-making processes (explored in greater detail in the following section). However, food policy is multidimensional, which offers opportunities for localized and diverse community needs and interests to be adopted at different scales, applied to varied geographies and processes, and directed to different components of the food system.

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[3] By 2019, food policy councils have reached a total of 351 and 13 food policy council conveners in the US and Canada. https://clf.maps.arcgis.com/apps/webappviewer/index.html?id=cd9c3625d9b34d728e58d3f3af95a5ed

[4] https://growingfoodconnections.org/tools-resources/policy-database/

[5] https://www.dcgreens.org/policy-1

Why Has Food Policy Literacy Been Limitedly Defined?

In this review, I argue there are at least four explanations for FPL being defined in a limited fashion in the literature, and consequently being scarcely challenged. First, food policies in general have tended to center individual actions (i.e., vote with your fork, green consumerism, etc.), or individual "consumption-as-politics" (Holt Giménez & Shattuck, 2011), rather than systemic solutions (Rose & Lourival, 2019). For example, Razavi et al. (2020), state that "for nearly 50 years, public health and clinical guidelines have concentrated on consumer education, behavioral change, and, to a lesser extent, food policy to help reduce sodium intake among Americans" (p. 1). Similarly, other scholars add that "people are not being asked to reconnect to context—to the soil, to work (and labor), to history, or to place—but to self-interest and personal appetite" (Andrée et al., 2015; DeLind, 2011, p. 279). To Szabady (2014):

> focus on the individual as the subject of food choice in food discourses not only detracts from the role of powerful agribusiness interests in creating a food system that serves their economic ends, but also has created an environment in which critiques are often narrowly focused on actions at the point of purchase, rather than generating fundamental changes to the production chain. (p. 638)

Second, political dimensions are usually left out of food literacy curricula and training programs, which carries pedagogical risk, as documented in the field of environmental education (Rose & Lourival, 2019; Slimani et al., 2021). Depoliticizing curricula risks students taking environmental "conflict for granted," and schools tending to "downplay the political and produce political sameness" (Slimani et al., 2021, p. 3). As in environmental education, food system education that emphasizes technical knowledge tends not to question the current organization of the food system (Meek & Tarlau, 2016; Rivera-Ferre et al., 2021).

A third explanation, at the global scale, is that issues concerning policy change are left out of mainstream discussions and, if adopted, tend to be implemented as less intrusive changes in developed countries and the Global North. Bhawra et al. (2018) claim that in "Canada, the USA, Australia, New Zealand, and several European countries, people tend to be more supportive of interventions that are less intrusive (i.e., menu labeling and educational campaigns) compared with more controlling policy interventions (i.e., taxation, bans)" (p. 503).

Fourth, the formalizing technical barriers imposed on food policymaking and implementation could be designed to limit citizen participation and disable affected groups from shaping food policy decisions. Under technocratic governments, FPL might be marked as irrelevant (Ilieva, 2020). Technocratic government regimes control the collection of information and legitimize the knowledge required for policy formation (i.e., economics and rationalism of efficiency), putting experts and professionals "above ideology, above interests, and above the conflict of different types of knowledge and systems of knowing" (Lo Bianco, 2001, p. 222). Thus, policy techniques can "raise barriers to entry into [policy] debate" and "diminish the place for the expression of values and the declaration of the preference of communities" (Lo Bianco, 2001, p. 224). Under these circumstances, food policy knowledge creates a crucial political organizing front.

Beyond Food Literacy and Policy Literacy: Conceptualizing Critical Food Policy Literacy

When communities lack the ability to decode and navigate local government food policymaking processes, equitable structural food system transformations become out of reach. This section draws from food and policy scholarship, as well as the theory of critical literacy, to elucidate principles for critical FPL. These principles seek to reduce the risk of co-optation of the meaning of FPL (i.e., reducing it to an industry-specific skill, reducing policy concerns to one component of the concept of FL, and limiting FPL to knowledge about available food policy-related government services). The five principles (Table 1) also center everyday community engagement in food systems policy formulation, planning, and implementation, especially at the municipal policy level.

Table 1. Conceptualizing Critical Food Policy Literacy from the Family Resemblance Relationship of Policy Literacy and Food Literacy

Policy Literacy	Food Literacy
[3] Precondition for informed engagement in policy steps, action, and processes (Lentz, 2014; Lo Bianco, 2001)	[1] Heightened understanding of the connection between food, people, and the wider **world** (Stinson, 1998; Sumner, 2015)
[4] Taught through examination of local policy documents with lived experience to support authentic learning (Ohajunwa et al., 2019)	[2] The ability to read the **word** (i.e., front-of-package nutrition labeling and policy documents) (Feteira-Santos et al., 2020)
[4] Learned through participation in situated policy-making processes (Breckwich Vásquez et al., 2007; Lo Bianco, 2001)	[3] Awareness of the processes, information, and activities in the food system (Palumbo et al., 2019; Rose & Lourival, 2019)
[5] Beyond knowing about available government services, voting, and conscientious consumption (Lentz, 2014)	[4] Adapts to changing circumstances throughout one's life (Begley et al., 2018)
	[5] Beyond individual consumer awareness and actions (Rosas et al., 2021; Rowat et al., 2021; Sumner, 2015)

Note: Shared elements between the concepts of policy literacy and food literacy were identified as key attributes for the conceptualization of critical food policy literacy. These were grouped into five categories 1–5.

1. *Critical food policy literacy encourages a relational awareness of each individual's position and collective positions in the* **world**: While individuality is emphasized in the FL literature (Sumner, 2015), FPL emphasizes both individual and collective awareness. In a globalized food system, "critical awareness of how people are in and with the world" is central to FPL, even when engaging with municipal-level policies. Such awareness requires that individuals know their role in society, in both the private and public spheres, and where society has put them in relation to others, human and nonhuman beings, in the food system. Indeed, critical FPL encourages an ecological awareness of the food system (Gliessman & de Wit Montenegro, 2021). It also means awareness of the inequalities and injustices in the food system and "who benefits and loses" from policy decisions. Critical awareness requires "heightened understanding of the connection between food, themselves, and the wider world" (Sumner, 2015, p. 41). To summarize, from a Freirean perspective, critical FPL is also the ability to "read the world" of food and related systems as well as to understand one's location in it. For example, the importation and exportation of food requires a "glocal" critical understanding of its economic, political, health, and environmental consequences (Wekerle, 2004). This awareness can inform community-led policy changes to protect fertile land and production (Wittman et al., 2017).

2. *Critical food policy literacy fosters the ability to use relevant policy and food system information, thus, to read the* **word**: From nutritional facts to policy document analysis, FPL fosters the "ability to collect, understand, process, and use relevant information to navigate the food system" (Palumbo et al., 2019, p. 104) and its policies, and fosters awareness of power and legitimation of data, information, and policy communication. The ability to decode documents on food systems policy can persuade ordinary people to be non-conformist as to "how institutions of power work to deny them equality of treatment, access, and justice" (Freire, 2018, p. 17) through obfuscation in policy communication. FPL is a non-conforming, unapologetic "reading of the word," and a critical interpretation of food policy-related language. A critical attention to food system discourse is required when communities engage with municipal food policies, especially at the institutionalization phase, to generate discursive responses that can lead to integrated and comprehen-

sive food policy efforts (Sibbing & Candel, 2021). For example, designating community gardens as a legitimate and permanent use of land in a city's plan requires a clear and unyielding use of language (Wekerle, 2004).

3. *Critical food policy literacy fosters procedural and systemic understanding of food and policy*: Policy formation and the food system move through "non-linear" steps, actions, or processes. While usually described through the following steps: "problem definition or identification of an issue; setting the agenda; deciding on the policy to pursue; and implementation of the policy" (Breckwich Vásquez et al., 2007, p. 344), food policy processes are dynamic and related across local, regional, and federal governments, various governmental agencies, and institutions. Similarly, food systems comprise a "chain of activities connecting food production, processing, distribution, consumption, and waste management, as well as all the associated regulatory institutions and activities" (Pothukuchi & Kaufman, 2000, p.113). Communities can better engage in these processes when they are aware of the usual policy procedures and their interrelations with the chain of activities in the food system in their local contexts. This awareness is both a 'full-cycle understanding of food' (Sumner, 2013, p. 86) and a "critical understanding of the process, history, and dilemmas of the overall practice of public policy-making" (Lo Bianco 2001, p. 213). In practice, municipalities do not necessarily have a "full-blown food systems approach from the start" (Sibbing & Candel, 2021, p. 580), but communities integrate specific food issues as stepping stones and start from setting policy agendas, food charters and strategies, to developing more institutionalized policies. Nevertheless, as stated previously, policy activism and "unofficial" strategies are legitimate elements of the policy participation process if the "official" policymaking processes do not benefit disadvantaged communities.

4. *Critical food policy literacies are contextually taught and learned through authentic practice*: Food and policies are influenced by the cultural, socioeconomic, and environmental characteristics of particular geographies. Therefore, FPL is taught and learned within a specific context, eventually emerging as a plurality and coexistence of multiple contextual literacies. As Meek and Tarlau (2016) state, direct exposure to food policies and processes, can promote analysis of the political and economic reasons that allow the current and local food system to exist. Like PL, FPL can be taught through "situated learning, collaborative problem solving, and goal-based scenarios" (Ohajunwa et al., 2019, p. 38). Drawing from Ohajunwa et al. (2019), FPL must connect with personal/emotive experiences and with what communities care about and their sense of self, remaining relevant to community concerns and priorities. The cognitive-emotional practice of FPL is dynamic, "developed over a person's life and adapted to changing circumstances" (Begley et al., 2019, p. 12), such as a global pandemic. The relevance, sense of self, and adaptability of circumstances centered in food policy issues selected by communities allow them to "set off goals for the food system or its parts…and determine the process for achieving these goals" (Pinstrup-Andersen & Watson, 2011, p. 29). FPL allows communities to push for food policies that will serve them according to what they value and need the most (Mah & Thang, 2013). Potentially, food policy-literate communities can tailor municipal food policy solutions to their needs, instead of choosing from a hypothetical "menu" of possible food system interventions (Candel, 2020). Nevertheless, institutional support to facilitate these practices is needed. For example, FPL programs could provide access to information on municipal policies (i.e., soft policies, plans, ordinances, regulations, and fiscal enactments) that are of interest to communities and ensure critical reflections on how these policies impact lives and how the policies could better serve them.

5. *Critical food policy literacy questions power and knowledge asymmetries for collective and transformative action*: Motivated by lived experiences and heterogeneity of identities, and in reaction to the corporate-led food system, communities that are food policy-literate "negotiate the world in which they find themselves" (Freire, 2018, p.1). Communities deal with power/knowledge asymmetries when aware that "those who have the capacity to claim what is

true [regarding the food system], have a claim to power" (Stehr & Adolf, 2018, p. 5). The enactment of people's sense of social responsibility and justice goes "beyond voting or conscientious consumption" of food (Lentz, 2014, p.137), beyond elections, representative democracy, or the individual actions of "voting with your fork" (Singer & Mason, 2006). Rather, FPL leads to collective "disruption of the commonplace" through reflective action and towards a creation of a praxis of liberation (Freire, 2018). With this awareness, communities resist the "deregulation and liberalization agendas" (Lentz, 2014, p. 137) in the food system, and confront the corporate domination of the food landscape that both monopolizes the markets and influences research (Rowat et al., 2019). Learning to negotiate the world with the "capacity to produce policy change" (Lentz, 2014, p. 136) means that engagement in, or resistance to, food policy processes from the municipal to the global scale requires active participation with other actors of the food system, especially those who are left discouraged or disincentivized to participate in shaping the food system policies that should serve them. Networks of people, groups and organizations are challenging industrial food systems through their "power to convene," and ultimately governing food beyond simple policy advocacy (Clark et al., 2021; Roberts, 2014) and towards more progressive and radical responses to the corporate food regime (Holt Giménez & Shattuck, 2011).

Conclusion

I have explored the "family resemblance" concept structure of FL and PL, along with critical literacies, to gain conceptual clarity about critical FPL. I also identified literacy tied to food and policy, as well as the implications for FPL for food system policy transformations at the municipal level.

I have given special attention to municipal-scale food system policies, a scale that is increasingly integrated into governance structures and decentralized food policy decisions. I also focused on who should be included in policy-making processes, and the awareness (cognitive and emotional) needed to participate in and interpret food system policies and planning. Indeed, knowledge/power imbalances influence both the

participatory planning, policy process, and the conceptualization of definitions. A commitment to whom the definition of FPL intends to serve must be central to its conceptualization. I suggest, as with Sumner (2015), the conceptualization of FPL should ask "Who benefits from being food policy literate?" and "Who benefits or loses when a particular definition of FPL becomes the norm?"

A clearer understanding of critical FPL could increase stakeholder engagement and planning, shifting power and knowledge to allow for governance arrangements that equip communities to transform their food systems. A conceptual difference was shown between FL on one hand, and FPL on the other, with political and policy implications for transformative food system change. While the former is devoid of systems-level understanding on how the policy landscape impacts and is impacted by the food system, the latter provides a critical understanding of these system-level dynamics and the power relations that condition community awareness, knowledge, engagement, and advocacy within the food system.

Drawing on Freire's work, I suggest that efforts to promote critical FPL must facilitate communities to (a) "read the world," (b) "read the word," (c) be critically aware of food policy processes and systems, (d) learn contextually and through authentic practice, and (e) enable them to negotiate and transform their community collectively. These five principles can be a starting point for theorizing, planning, executing, and testing food policy education and training efforts. Critical FPL initiatives need to support those most oppressed by the current corporate and global food system. Their lack of knowledge or awareness regarding food policy processes is not a reasonable justification for their exclusion. Instead, those engaged with food policy, including food system planners, should facilitate knowledge sharing with communities to ensure the accurate defining of problems and consequent effective policy solutions.

Food systems planners and food policy professionals would benefit from learning how communities train and practice FPL. Communities are already engaging in food system transformations by challenging multinational corporations and neolib-

eral paradigms, and by expanding food-related literacies for food policies at different levels of government (see the GFC database referenced earlier). Food system planners would benefit from listening to what food activists and advocates have to say about training, participating in, and creating food policy awareness in their organizations and communities.

Knowledge about engaging with food policy processes is not commensurate with actual engagement, so structural barriers to community participation must also be addressed. Food system planners and educators, particularly at the municipal level, should support locally based citizen food organizations to engage in food policy (Roberts, 2014). This support must go beyond assessing communities' FPL and aim to bridge gaps in power and knowledge to ensure critical readiness for food policy engagement.

Further research could flesh out the conceptual idea of FPL by drawing from empirical evidence. For example, interviewing experts across the food system, conducting case studies and focus groups of food system practitioners, and undertaking observation to gather empirical data from food policy groups would help validate the core principles of critical FPL included in this literature re-

view. Context-specific factors should be considered, and community food policy actors should construct food policy literacies and definitions that fit their local situations. Thus communities can conceptualize their "own words" and define and transform the future of their food systems.

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References

Amouzandeh, C., Fingland, D., & Vidgen, H. A. (2019). A scoping review of the validity, reliability and conceptual alignment of food literacy measures for adults. *Nutrients*, *11*(4), Article 801. https://doi.org/10.3390/nu11040801

Andrée, P., Ballamingie, P., & Sinclair-Waters, B. (2015). Neoliberalism and the making of food politics in Eastern Ontario. *Local Environment*, *20*(12), 1452–1472. https://doi.org/10.1080/13549839.2014.908277

Bailey, C. J., Drummond, M. J., & Ward, P. R. (2019). Food literacy programmes in secondary schools: A systematic literature review and narrative synthesis of quantitative and qualitative evidence. *Public Health Nutrition*, *22*(15), 2891–2913. https://doi.org/10.1017/s1368980019001666

Begley, A., Paynter, E., & Dhaliwal, S. S. (2018). Evaluation tool development for food literacy programs. *Nutrients*, *10*(11), Article 1617. https://doi.org/10.3390/nu10111617

Bhawra, J., Reid, J. L., White, C. M., Vanderlee, L., Raine, K., & Hammond, D. (2018). Are young Canadians supportive of proposed nutrition policies and regulations? An overview of policy support and the impact of socio-demographic factors on public opinion. *Canadian Journal of Public Health*, *109*(4), 498–505. https://doi.org/10.17269/s41997-018-0066-1

Breckwich Vásquez, V., Lanza, D., Hennessey-Lavery, S., Facente, S., Halpin, H. A., & Minkler, M. (2007). Addressing food security through public policy action in a community-based participatory research partnership. *Health Promotion Practice*, *8*(4), 342–349. https://doi.org/10.1177/1524839906298501

Cabannes, Y., & Marocchino, C. (2018). *Integrating food into urban planning*. UCL Press. https://doi.org/10.2307/j.ctv513dv1

Candel, J. J. L. (2020). What's on the menu? A global assessment of MUFPP signatory cities' food strategies. *Agroecology and Sustainable Food Systems*, *44*(7), 919−946. https://doi.org/10.1080/21683565.2019.1648357

Clark, J. K., Freedgood, J., Irish, A., Hodgson, K., & Raja, S. (2017). Fail to include, plan to exclude: Reflections on local governments' readiness for building equitable community food systems. *Built Environment*, *43*(3), 315−327. https://doi.org/10.2148/benv.43.3.315

Clark, J. K., Lowitt, K., Levkoe, C. Z., & Andrée, P. (2021). The power to convene: Making sense of the power of food movement organizations in governance processes in the Global North. *Agriculture and Human Values*, *38*(1), 175−191. https://doi.org/10.1007/s10460-020-10146-1

Coplen, A., & Cuneo, M. (2015). Dissolved: Lessons learned from the Portland Multnomah Food Policy Council. *Journal of Agriculture, Food Systems, and Community Development*, *5*(2), 91−107. https://doi.org/10.5304/jafscd.2015.052.002

Cullen, T., Hatch, J., Martin, W., Higgins, J. W., & Sheppard, R. (2015). Food literacy: Definition and framework for action. *Canadian Journal of Dietetic Practice and Research*, *76*(3), 140−145. https://doi.org/10.3148/cjdpr-2015-010

Cuy Castellanos, D., Jones, J. C., Christaldi, J., & Liutkus, K. A. (2017). Perspectives on the development of a local food system: The case of Dayton, Ohio. *Agroecology and Sustainable Food Systems*, *41*(2), 186−203. https://doi.org/10.1080/21683565.2016.1263893

Dale, C., Robinson, J. S., & Edwards, M. C. (2017). An assessment of the agricultural literacy of incoming freshmen at a land-grant university. *NACTA Journal*, *61*(1), 7−13. https://www.jstor.org/stable/90004098

DeLind, L. (2011). Are local food and the local food movement taking us where we want to go? Or are we hitching our wagons to the wrong stars? *Agriculture and Human Values*, *28*(2), 273−283. https://doi.org/10.1007/s10460-010-9263-0

Fernandez, M. A., Bertolo, R. F., Duncan, A. M., Phillips, S. M., Elango, R., Ma, D. W. L., Desroches, S., Grantham, A., & House, J. D. (2020). Translating "protein foods" from the new Canada's Food Guide to consumers: Knowledge gaps and recommendations. *Applied Physiology, Nutrition, and Metabolism*, *45*(12), 1311−1323. https://doi.org/10.1139/apnm-2020-0192

Feteira-Santos, R., Fernandes, J., Virgolino, A., Alarcao, V., Sena, C., Vieira, C. P., Gregorio, M. J., Nogueira, P., Costa, A., Graca, P., & Santos, O. (2020). Effectiveness of interpretive front-of-pack nutritional labelling schemes on the promotion of healthier food choices: A systematic review [Review]. *International Journal of Evidence-Based Healthcare*, *18*(1), 24−37. https://doi.org/10.1097/xeb.0000000000000214

Flew, T., Martin, F., & Suzor, N. (2019). Internet regulation as media policy: Rethinking the question of digital communication platform governance. *Journal of Digital Media & Policy, 10*(1), 33–50. https://doi.org/10.1386/jdmp.10.1.33_1

Foucault, M. (1980). *Power/Knowledge: Selected interviews and other writings 1972−1977* (Ed. C. Gordon). Pantheon.

Freire, P. (1970). *Pedagogy of the oppressed* (30th Anniversary ed.) (M. B. Ramos, Trans.). Continuum.

Freire, P. (1976). Are adult literacy programmes neutral? In L. Bataille (Ed.), *A turning point for literacy* (pp. 195−200). Pergamon. https://doi.org/10.1016/B978-0-08-021385-9.50015-7

Freire, P. (1985). Reading the world and reading the word: An interview with Paulo Freire. *Language Arts*, *62*(1), 15−21. http://www.jstor.org/stable/41405241

Freire, P. (2018). *Pedagogy of the oppressed* (50th anniversary ed.) (M. B. Ramos, Trans.). Bloomsbury Academic.

Frimpong Boamah, E., Sumberg, J., & Raja, S. (2020). Farming within a dual legal land system: An argument for emancipatory food systems planning in Accra, Ghana. *Land Use Policy*, *92*, Art. 104391. https://doi.org/10.1016/j.landusepol.2019.104391

Fuster, M. (2014). Book review [*Eating right in America: The cultural politics of food and health*, C. Biltekoff, Duke University Press, 2013]. *Global Public Health*, *9*(4), 472−473. https://doi.org/10.1080/17441692.2014.895022

Gliessman, S., & de Wit Montenegro, M. (2021). Agroecology at the UN Food Systems Summit. *Agroecology and Sustainable Food Systems*, *45*(10), 1417−1421. https://doi.org/10.1080/21683565.2021.1976474

Gómez-Benito, C., & Lozano-Cabedo, C. (2014). Constructing food citizenship: Theoretical premises and social practices. *Italian Sociological Review*, *4*(2), 135−156. https://doi.org/10.13136/isr.v4i2.79

Gupta, C., Campbell, D., Munden-Dixon, K., Sowerwine, J., Capps, S., Feenstra, G., & Van Soelen Kim, J. (2018). Food policy councils and local governments: Creating effective collaboration for food systems change. *Journal of Agriculture, Food Systems, and Community Development*, *8*(Suppl. 2), 11–28. https://doi.org/10.5304/jafscd.2018.08B.006

Guthman, J. (2008). Neoliberalism and the making of food politics in California. *Geoforum*, *39*(3), 1171−1183. https://doi.org/10.1016/j.geoforum.2006.09.002

Hilimire, K., Gillon, S., McLaughlin, B. C., Dowd-Uribe, B., & Monsen, K. L. (2014). Food for thought: Developing curricula for sustainable food systems education programs. *Agroecology and Sustainable Food Systems*, *38*(6), 722−743. https://doi.org/10.1080/21683565.2014.881456

Hillerich, R. (1976). Toward an assessable definition of literacy. *The English Journal*, *65*(2), 50−55. https://www.jstor.org/stable/814811

Holt Giménez, E., & Shattuck, A. (2011). Food crises, food regimes and food movements: rumblings of reform or tides of transformation? *Journal of Peasant Studies*, *38*(1), 109−144. https://doi.org/10.1080/03066150.2010.538578

Ilieva, R. T. (2020). Urban food planning: A new frontier for city and regenerative food system builders. In J. Duncan, M. Carolan, & J. S. C. Wiskerke (Eds.), *Routledge handbook of sustainable and regenerative food systems* (pp. 388−405), Routledge. https://doi.org/10.4324/9780429466823

Lentz, B. (2014). The media policy tower of babble: A case for "policy literacy pedagogy." *Critical Studies in Media Communication*, *31*(2), 134−140. https://doi.org/10.1080/15295036.2014.921318

Lewison, M., Flint, A. S., & Sluys, K. V. (2002). Taking on critical literacy: The journey of newcomers and novices. *Language Arts*, *79*(5), 382−392. http://www.jstor.org/stable/41483258

Lo Bianco, J. (2001). Policy literacy. *Language and Education*, *15*(2−3), 212−227. https://doi.org/10.1080/09500780108666811

Luke, A. (2012). Critical literacy: Foundational notes. *Theory Into Practice*, *51*(1), 4−11. https://doi.org/10.1080/00405841.2012.636324

Mah, C. L., & Thang, H. (2013). Cultivating food connections: The Toronto Food Strategy and municipal deliberation on food. *International Planning Studies*, *18*(1), 96−110. https://doi.org/10.1080/13563475.2013.750941

Maxwell, S., & Slater, R. (2003). Food policy old and new. *Development Policy Review*, *21*(5–6), 531–553. https://doi.org/10.1111/j.1467-8659.2003.00222.x

Meek, D., & Tarlau, R. (2016). Critical food systems education (CFSE): Educating for food sovereignty. *Agroecology and Sustainable Food Systems*, *40*(3), 237−260. https://doi.org/10.1080/21683565.2015.1130764

Moragues-Faus, A., & Sonnino, R. (2019). Re-assembling sustainable food cities: An exploration of translocal governance and its multiple agencies. *Urban Studies*, *56*(4), 778−794. https://doi.org/10.1177/0042098018763038

Morley, A., & Morgan, K. (2021). Municipal foodscapes: Urban food policy and the new municipalism. *Food Policy*, *103*, Art. 102069. https://doi.org/10.1016/j.foodpol.2021.102069

Mui, Y., Khojasteh, M., Hodgson, K., & Raja, S. (2018). Rejoining the planning and public health fields: Leveraging comprehensive plans to strengthen food systems in an urban versus rural jurisdiction. *Journal of Agriculture, Food Systems, and Community Development*, *8*(B), 73–93. https://doi.org/10.5304/jafscd.2018.08B.004

Nanayakkara, J., Margerison, C., & Worsley, A. (2017). Importance of food literacy education for senior secondary school students: Food system professionals' opinions. *International Journal of Health Promotion and Education*, *55*(5−6), 284−295. https://doi.org/10.1080/14635240.2017.1372695

Ohajunwa, C., Geiger, M., Ned, L., & Luger, R. (2019). Teaching policy literacy: A case study from the field of disability and rehabilitation studies. *Perspectives in Education*, *37*(1), 29−42. https://doi.org/10.18820/2519593X/pie.v37i1.3

Palumbo, R., Adinolfi, P., Annarumma, C., Catinello, G., Tonelli, M., Troiano, E., Vezzosi, S., & Manna, R. (2019). Unravelling the food literacy puzzle: Evidence from Italy. *Food Policy*, *83*, 104−115. https://doi.org/10.1016/j.foodpol.2018.12.004

Park, D., Park, Y. K., Park, C. Y., Choi, M.-K., & Shin, M.-J. (2020). Development of a comprehensive food literacy measurement tool integrating the food system and sustainability. *Nutrients*, *12*(11), Art. 3300. https://www.mdpi.com/2072-6643/12/11/3300

Park, E., & Lee, J.-W. (2015). A study on policy literacy and public attitudes toward government innovation—Focusing on Government 3.0 in South Korea. *Journal of Open Innovation: Technology, Market, and Complexity*, *1*(1), Art. 23. https://doi.org/10.1186/s40852-015-0027-3

Perry, E. A., Thomas, H., Samra, H. R., Edmonstone, S., Davidson, L., Faulkner, A., Petermann, L., Manafo, E., & Kirkpatrick, S. I. (2017). Identifying attributes of food literacy: A scoping review. *Public Health Nutrition*, *20*(13), 2406−2415. https://doi.org/10.1017/s1368980017001276

Pinstrup-Andersen, P., & Watson, D. D. (2011). *Food policy for developing countries: The role of government in global, national, and local food systems.* Cornell University Press. https://doi.org/10.7591/9780801463433

Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2016). Recommendations for creating better concept definitions in the organizational, behavioral, and social sciences. *Organizational Research Methods*, *19*(2), 159–203. https://doi.org/10.1177/1094428115624965

Raja, S., Clark, J. K., Freedgood, J., & Hodgson, K. (2018). Reflexive and inclusive: Reimagining local government engagement in food systems. *Journal of Agriculture, Food Systems, and Community Development*, *8*(B), 1–10. https://doi.org/10.5304/jafscd.2018.08B.013

Raja, S., Picard, D., Baek, S., & Delgado, C. (2014). Rustbelt radicalism: A decade of food systems planning in Buffalo, New York (USA). *Journal of Agriculture, Food Systems, and Community Development*, *4*(4), 173–189. https://doi.org/10.5304/jafscd.2014.044.015

Raja, S., Sweeney, E., Mui, Y., & Frimpong Boamah, E. (2021). *Local government planning for community food systems—Opportunity, innovation and equity in low- and middle-income countries.* Food and Agricultural Organization of the United Nations (FAO). https://doi.org/10.4060/cb3136en

Razavi, A. C., Dyer, A., Jones, M., Sapin, A., Caraballo, G., Nace, H., Dotson, K., Razavi, M. A., & Harlan, T. S. (2020). Achieving dietary sodium recommendations and atherosclerotic cardiovascular disease prevention through culinary medicine education. *Nutrients*, *12*(12), Art. 3632. https://doi.org/10.3390/nu12123632

Rivera-Ferre, M. G., Gallar, D., Calle-Collado, Á., & Pimentel, V. (2021). Agroecological education for food sovereignty: Insights from formal and non-formal spheres in Brazil and Spain. *Journal of Rural Studies*, *88*, 138–148. https://doi.org/10.1016/j.jrurstud.2021.10.003

Robert, N., & Mullinix, K. (2018). Municipal policy enabling regional food systems in British Columbia, Canada: Assessing focal areas and gaps. *Journal of Agriculture, Food Systems, and Community Development*, *8*(Suppl. 2), 115–132. https://doi.org/10.5304/jafscd.2018.08B.003

Roberts, W. (2014). *Food for city building: A field guide for planners, actionists & entrepreneurs.* Hypenotic.

Rosas, R., Pimenta, F., Leal, I., & Schwarzer, R. (2021). FOODLIT-PRO: Conceptual and empirical development of the Food Literacy Wheel. *International Journal of Food Sciences and Nutrition*, *72*(1), 99−111. https://doi.org/10.1080/09637486.2020.1762547

Rosch, E., & Mervis, C. B. (1975). Family resemblances: Studies in the internal structure of categories. *Cognitive Psychology*, *7*(4), 573−605. https://doi.org/10.1016/0010-0285(75)90024-9

Rose, N., & Lourival, I. (2019). Hegemony, counter-hegemony and food systems literacy: Transforming the global industrial food system. *Australian Journal of Environmental Education*, *35*(2), 110−122. https://doi.org/doi:10.1017/aee.2019.9

Rowat, A. C., Soh, M., Malan, H., Jensen, L., Schmidt, L., & Slusser, W. (2021). Promoting an interdisciplinary food literacy framework to cultivate critical citizenship. *Journal of American College Health*, *69*(4), 459−462. https://doi.org/10.1080/07448481.2019.1679149

Schiff, R. (2008). The role of food policy councils in developing sustainable food systems. *Journal of Hunger & Environmental Nutrition*, *3*(2−3), 206−228. https://doi.org/10.1080/19320240802244017

Sibbing, L. V., & Candel, J. J. L. (2021). Realizing urban food policy: A discursive institutionalist analysis of Ede municipality. *Food Security*, *13*(3), 571−582. https://doi.org/10.1007/s12571-020-01126-8

Siddiki, S. N., Carboni, J. L., Koski, C., & Sadiq, A.-A. (2015). How policy rules shape the structure and performance of collaborative governance arrangements. *Public Administration Review*, *75*(4), 536−547. https://doi.org/10.1111/puar.12352

Singer, P., & Mason, J. (2006). *The way we eat: Why our food choices matter.* Rodale.

Slimani, M., Lange, J.-M., & Håkansson, M. (2021). The political dimension in environmental education curricula: Towards an integrative conceptual and analytical framework. *Environmental Education Research*, *27*(3), 354–365. https://doi.org/10.1080/13504622.2021.1879023

Smith, K. L., Shade, L. R., & Shepherd, T. (2017). Open privacy badges for digital policy literacy. *International Journal of Communication*, *11*, 2784–2805. https://ijoc.org/index.php/ijoc/article/view/6174

Stehr, N., & Adolf, M. T. (2018). Knowledge/Power/Resistance. *Society*, *55*(2), 193–198. https://doi.org/10.1007/s12115-018-0232-3

Stinson, E. (1998). *Eating the world: Food literacy and its place in secondary school classrooms* [Master's thesis, University of Victoria]. https://dspace.library.uvic.ca/handle/1828/2841

Sumner, J. (2015). Reading the world: Food literacy and the potential for food system transformation. *Studies in the Education of Adults*, *47*(2), 128–141. https://doi.org/10.1080/02660830.2015.11661680

Szabady, G. L. (2014). The cornucopia of signification: Moving beyond food identity toward food democracy. *Food, Culture & Society*, *17*(4), 629–639. https://doi.org/10.2752/175174414X14006746101556

Takeda, Y. (2022). Praxis of critical literacy: Pragmatic utilization of theoretical tensions. *Critical Education*, *13*(2), 36–50. https://doi.org/10.14288/ce.v13i1.186594

Thompson, C., Adams, J., & Vidgen, H. A. (2021). Are we closer to international consensus on the term 'food literacy'? A systematic scoping review of its use in the academic literature (1998–2019). *Nutrients*, *13*(6), Art. 2006. https://doi.org/10.3390/nu13062006

Trubek, A. B., Carabello, M., Morgan, C., & Lahne, J. (2017). Empowered to cook: The crucial role of 'food agency' in making meals. *Appetite*, *116*, 297–305. https://doi.org/10.1016/j.appet.2017.05.017

Truman, E., Lane, D., & Elliott, C. (2017). Defining food literacy: A scoping review. *Appetite*, *116*, 365–371. https://doi.org/10.1016/j.appet.2017.05.007

Vaitkeviciute, R., Ball, L. E., & Harris, N. (2015). The relationship between food literacy and dietary intake in adolescents: A systematic review. *Public Health Nutrition*, *18*(4), 649–658. https://doi.org/10.1017/s1368980014000962

Velardo, S. (2015). The nuances of health literacy, nutrition literacy, and food literacy. *Journal of Nutrition Education and Behavior*, *47*(4), 385–389, Article E1. https://doi.org/10.1016/j.jneb.2015.04.328

Vidgen, H. A., & Gallegos, D. (2014). Defining food literacy and its components. *Appetite*, *76*, 50–59. https://doi.org/10.1016/j.appet.2014.01.010

Wekerle, G. R. (2004). Food justice movements: Policy, planning, and networks. *Journal of Planning Education and Research*, *23*(4), 378–386. https://doi.org/10.1177/0739456x04264886

Wittman, H., Dennis, J., & Pritchard, H. (2017). Beyond the market? New agrarianism and cooperative farmland access in North America. *Journal of Rural Studies*, *53*, 303–316. https://doi.org/10.1016/j.jrurstud.2017.03.007

Yamashita, L., & Robinson, D. (2016). Making visible the people who feed us: Educating for critical food literacy through multicultural texts. *Journal of Agriculture, Food Systems, and Community Development*, *6*(2), 269–281. https://doi.org/10.5304/jafscd.2016.062.011

Alfabetización crítica de políticas alimentarias: Conceptualizando la participación de las comunidades en políticas alimentarias municipales

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Resumen

Las políticas alimentarias deberían estar formuladas por aquellos a quienes pretenden servir, pero los procesos de elaboración de políticas siguen siendo exclusivos para voces, conocimientos y experiencias privilegiadas. Activistas, organizadores y académicos se han esforzado por capacitar a las comunidades en políticas alimentarias para hacer que los procesos políticos sean más accesibles, aumentando potencialmente su alfabetización en políticas alimentarias (APA o *food policy literacy*). En este artículo, sostengo que hacer accesibles los procesos, la información y la capacitación en política alimentaria a las comunidades puede prepararlas mejor para que participen, interpreten y controlen las políticas del sistema alimentario, especialmente a nivel municipal. Me baso en la premisa de que una comprensión clara de las políticas alimentarias es una condición necesaria (y no suficiente) para la partici-

pación de la comunidad en la formulación, planificación e implementación de políticas sobre sistemas alimentarios. En la bibliografía existente se han definido a fondo la alfabetización alimentaria (*food literacy*) y la alfabetización política (*policy literacy*), pero se ha trabajado muy poco en la definición de "alfabetización de políticas alimentarias." Para abordar esta laguna conceptual, este artículo tiende un puente entre los estudios sobre alimentación y política alimentaria y el trabajo de alfabetización crítica de Paulo Freire para responder a las siguientes preguntas: ¿Cómo entendemos las alfabetizaciones relacionadas con la política alimentaria? ¿Qué significa (o qué podría significar) estar alfabetizado en política alimentaria? ¿Cómo puede la alfabetización crítica vinculada a la política alimentaria aportar en la transformación de los sistemas alimentarios? Siguiendo este análisis, deter-

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mino que la APA crítica es una "lectura del mundo y de las palabras," una conciencia crítica de los procesos de la política alimentaria, una práctica de aprendizaje contextual y auténtica, y un compromiso colectivo con la transformación de la política alimentaria.

Palabras clave

Alfabetización crítica en política alimentaria, Alfabetización en política alimentaria, Alfabetización crítica, Alfabetización alimentaria, Política alimentaria, Alfabetización política, Participación en el sistema alimentario, Política participativa, Políticas alimentarias municipales, Planificación participativa del sistema alimentario

Introducción

El término "alfabetización" se ha definido de diversas maneras en la bibliografía académica, tanto como la capacidad de leer y escribir en un nivel escolar específico, y como el conocimiento y las competencias que permiten a una persona (o a un colectivo de personas) actuar (Hillerich, 1976). Según Lewison et al., (2002), las alfabetizaciones críticas implican cuatro dimensiones: "trastocan lo común, interrogan múltiples puntos de vista, se centran en problemáticas sociopolíticas y accionan para promover la justicia social" (p. 382). Numerosos académicos, como Paulo Freire, bell hooks e Ira Shor, han propuesto la idea de "alfabetizaciones críticas" más allá de la competencia escolar para abordar asuntos más amplios en temas de justicia. El concepto también se ha desarrollado en los trabajos académicos de Voloshinov, Brecht, Hoggart y Williams y en las teorías postestructuralistas de Foucault y Derrida (Luke, 2012).

Como uno de los principales defensores de las alfabetizaciones críticas, Freire (1985) propuso la *conscientização*, o toma de conciencia crítica (Takeda, 2022), como una "toma de conciencia de cómo las personas están en y con el mundo" para "negociar el mundo en el que se encuentran" (Freire, 2018, p. 1). Para Freire, esta conciencia implica comprender "cómo funcionan las instituciones de poder, que niegan la igualdad de trato, el acceso y la justicia" (Freire, 2018, p. 17). Sostuvo que los oprimidos se benefician de la alfabetización si les permite leer el mundo y la palabra, reflexionar y enfrentarse a la

cultura de dominación y crear una praxis de liberación a través de la cual retoman su derecho a "decir su propia palabra y pensar su propio pensamiento" (Freire, 1970, p. 126). Inspirándome en Freire, considero las alfabetizaciones críticas como herramientas para la conciencia contrahegemónica, la agencia, la autodeterminación, el compromiso cívico y la libertad, en lugar de como una "domesticación" que permita la preparación para el trabajo y la productividad social que la sociedad espera (Freire, 1976). Además, en consonancia con estas alfabetizaciones críticas, sugiero que una "conciencia crítica," una "confrontación de la cultura de la dominación" y una "praxis de liberación" diseñada por aquellos más oprimidos por las desigualdades del sistema alimentario, son en última instancia la base para impulsar sistemas alimentarios liderados por la comunidad.

En este artículo, propongo principios para la conceptualización de la alfabetización crítica en políticas alimentarias (ACPA) partiendo de artículos que se relacionen a la alfabetización crítica, políticas alimentarias y políticas en general, con especial atención a su efecto en la política de sistemas alimentarios a escala municipal. Esta revisión no pretende ser exhaustiva. Más bien, está diseñada para animar a los lectores a reconocer la importancia de crear espacios para que las comunidades, primero tomen conciencia y aprendan, y luego se involucren en las transformaciones de la política alimentaria. No abogo por una definición estandarizada, prescrita y medible de la ACPA, sino que arrojo luz sobre la conceptualización de la ACPA como herramienta para la organización, la educación y la planificación comunitaria.

En general, las escalas del conocimiento relacionado con los alimentos abarcan desde la "microescala" (proteínas, grasas, carbohidratos y minerales) hasta la "macroescala" (acción social, medioambiental, económica y política) (Fuster, 2014). La naturaleza multiescalar del conocimiento relacionado con la alimentación influye en cómo las personas entienden y se involucran con los alimentos, incluyendo sus políticas (Moragues-Faus & Sonnino, 2019). Sin embargo, a través de estas múltiples escalas se crean dinámicas de "poder/ saber" (Foucault, 1980) cuando se atribuye a las personas como (an)alfabetizadas en temas relacionados con

la alimentación y las políticas alimentarias. De hecho, las desigualdades estructurales influyen en el grado de conocimiento y participación de la gente en las políticas alimentarias. Me baso en la premisa de que la comprensión clara de las políticas alimentarias por parte de las comunidades es una condición necesaria, aunque insuficiente, para la participación de las comunidades en la formulación, planificación e implementación de políticas sobre sistemas alimentarios.

Mientras que la alfabetización política (AP) y la alfabetización alimentaria (AA) se definen ampliamente en la literatura académica, ha habido muy pocos trabajos sobre la definición de la alfabetización en políticas alimentarias (APA). Si estos conceptos se mantienen separados, la AP sin alimentos o la AA sin políticas dejarían los desequilibrios de poder y conocimiento fuera de las agendas de transformación de los sistemas alimentarios. Una visión crítica de las asimetrías de poder y conocimiento existentes en los procesos de las políticas alimentarias sugiere que la APA debe ser accesible a las personas, especialmente a aquellas que son marginadas por las políticas públicas y a las que a menudo se culpa de sus condiciones alimentarias. El conocimiento desempeña un papel clave de organización política, pero sigue siendo necesario entender claramente lo que significa tener conocimientos sobre políticas alimentarias. La falta de claridad o de consenso sobre los conceptos vinculados a la política alimentaria (por ejemplo, APA) permite la cooptación de las políticas por parte de actores con intereses personales (Andrée et al., 2015; Siddiki et al., 2015). Para transformar los sistemas alimentarios hay que abordar cuestiones como el poder/conocimiento, la agencia, los recursos y la autoridad, pero también el poder sobre la información, el acceso a los recursos políticos y el control sobre las definiciones (Frimpong Boamah et al., 2020; Sumner, 2015).

Sin una conceptualización clara de la ACPA, es posible que no se aborden adecuadamente los procesos de formación, educación y planificación participativa en materia de política alimentaria. Del mismo modo, sin esta claridad conceptual, la investigación en planificación de sistemas alimentarios y los campos relacionados carecerán de eficacia para apoyar las tan necesarias transformaciones de los sistemas alimentarios lideradas por las comunidades, que van más allá de las alternativas de consumo (Andrée et al., 2015; Cuy Castellanos et al., 2017; Meek & Tarlau, 2016) y las soluciones ideadas por el régimen alimentario corporativo (Holt Giménez & Shattuck, 2011). La planificación tiene un carácter interdisciplinario ideal para la conceptualización de la APA porque desempeña un papel intermediario entre la política y el conocimiento generado por otros campos de investigación y el activismo comunitario. Como disciplina orientada a los sistemas y las políticas, la planificación está en capacidad de conceptualizar la APA tanto desde la perspectiva de las políticas alimentarias como desde la perspectiva de los sistemas alimentarios.

Ampliar la idea de la alfabetización en política alimentaria más allá de la alfabetización agrícola (Dale et al., 2017), la alfabetización nutricional (Velardo, 2015) y la agencia alimentaria (Trubek et al., 2017) permite considerar el papel más amplio de los alimentos como vehículo de aprendizaje en todo el sistema alimentario. Una conciencia crítica del sistema alimentario y sus políticas podría dar lugar a transformaciones más estructurales de la política alimentaria. Además, distanciarse de las alfabetizaciones ahistóricas, apolíticas y centradas en el comportamiento individual, permite abordar las neoliberalizaciones imperantes del sistema alimentario corporativo (Guthman, 2008).

Los enfoques críticos existentes de la AA adoptan muchas formas (Cullen et al., 2015). Por ejemplo, algunos académicos proponen alfabetizaciones críticas sobre la alimentación para concienciar sobre quienes trabajan en los sectores de todo el sistema alimentario a través de textos multiculturales (Yamashita y Robinson, 2016), alfabetización crítica sobre el sistema alimentario dentro de la educación medioambiental (Rose & Lourival, 2019) y educación crítica sobre el sistema alimentario como proyecto político que contribuya al movimiento global por la soberanía alimentaria (Meek & Tarlau, 2016).

Las políticas alimentarias y sus procesos deben definirse en función de los objetivos de transformación alimentaria de las comunidades, especialmente en el nivel gubernamental más cercano a las mismas. Recientemente, la atención hacia la política

alimentaria ha aumentado, en parte por la labor de activistas, consejos locales de política alimentaria (*food policy councils*) y numerosas organizaciones comprometidas con la transformación de los sistemas alimentarios en sus localidades.[1] En las últimas dos décadas, la política alimentaria a escala municipal ha ganado cada vez más atención de los legisladores, las organizaciones internacionales y los activistas alimentarios (Cabannes & Marocchino, 2018; Raja, 2021). Las organizaciones comunitarias que trabajan por la transformación del sistema alimentario también están cada vez más interesadas en los cambios políticos (Raja et al., 2014; Roberts, 2014). El objetivo de este artículo, por lo tanto, es basarse en la bibliografía existente para conceptualizar la ACPA y centrarse en las políticas alimentarias a nivel municipal.

La conceptualización de la APA desarrollada en este trabajo podría parecer similar al concepto de ciudadanía alimentaria (Gómez-Benito & Lozano-Cabedo, 2014). Sin embargo, la APA no debería limitarse a los "sujetos titulares de derechos," ni estar vinculada a los deberes y obligaciones que engloba la ciudadanía (Benito & Lozano-Cabedo, 2014, p.141). En cambio, la APA presta atención al desequilibrio de poder al aprender a participar o formular políticas alimentarias. La misma "[apoya] a los aprendices para que tomen conciencia de las fuerzas [del sistema alimentario] que han gobernado sus vidas y, especialmente, moldeado sus conciencias" (Freire, 2018, p. 9). La APA permite y potencia la ciudadanía alimentaria.

Este artículo procede de la siguiente manera. En primer lugar, presento el enfoque metodológico para conceptualizar la ACPA a través del "parecido familiar" de la alfabetización alimentaria y la alfabetización política. En segundo lugar, ofrezco una visión general de la bibliografía seleccionada y exploro las características conceptuales compartidas entre la alfabetización política y la alfabetización alimentaria, así como sus respectivas asociaciones con las alfabetizaciones críticas. En tercer lugar, contextualizo estos conceptos en el ámbito de la política alimentaria municipal. En cuarto lugar, sugiero cuales son las causas de la escasa conceptualización de la APA en la bibliografía existente. Finalmente, delineo cinco principios de la ACPA basándome en el trabajo de Freire sobre alfabetizaciones críticas, conceptualizando una alfabetización que aumente las transformaciones políticas del sistema alimentario lideradas por la comunidad.

Métodos: Estrategias de revisión bibliográfica

Las ideas de esta revisión bibliográfica proceden de un análisis de la literatura revisada por expertos. Las principales bases de datos utilizadas para recuperar la bibliografía fueron Web of Science, JSTOR y Google Scholar. Los artículos se buscaron utilizando varias frases clave relacionadas con la alfabetización en políticas alimentarias.[2] Se incluyeron artículos en inglés publicados en revistas revisadas por pares entre 1990 y 2021 (de cualquier región). Finalmente, se revisaron y analizaron cuarenta artículos. Los artículos procedían en general de dos ámbitos: a) estudios sobre la alfabetización alimentaria (AA), la política alimentaria y sistemas alimentarios, y b) estudios sobre la alfabetización política (AP) en general. Estos dos ámbitos de la bibliografía académica, en combinación con los estudios sobre la alfabetización crítica (alimentaria/política), se revisaron para dilucidar cinco principios clave de la alfabetización crítica en políticas alimentarias.

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[1] Por ejemplo, las estrategias alimentarias (*food strategies*) y los planes comunitarios oficiales son dos formas de políticas alimentarias (en Canadá y el Reino Unido) a escala de gobierno municipal. Estas políticas demuestran las formas en que los enfoques coordinados de las políticas del sistema alimentario pueden ofrecer soluciones integrales (Mah y Thang, 2013; Robert y Mullinix, 2018).

[2] Los principales términos de búsqueda, utilizados tanto por separado como combinados, incluyeron "alimentos," "política," "alfabetización," "sistema." En la búsqueda se incluyeron otras palabras clave extraídas de la búsqueda inicial: "activismo," "adulto," "abogacía," "campaña," "toma de decisiones," "educación" "política eficaz," "compromiso," "equidad," "evaluación," "democracia alimentaria," "consejo de política alimentaria," "formación e implementación," "impacto," "justicia," "políticas locales," "resultados," "participación," "pedagogía," "planificación," "política alimentaria," "preparación," "formación" y "juventud." Se excluyeron los artículos que trataban los siguientes temas: estudios médicos y clínicos, evaluaciones dietéticas, alfabetización en salud, alfabetización agrícola, comercialización de alimentos poco saludables, política curricular, tecnologías de la comunicación y diseño urbano.

Definiciones conceptuales de los estudios sobre política y alimentación

Para abordar el tema de la APA recurrí a estudios de distintas disciplinas. Los cuarenta artículos revisados para este escrito abarcan la AA, la política alimentaria y la educación en sistemas alimentarios y la AP en general. Los artículos sobre alfabetización alimentaria tratan principalmente sobre su medición en la población adulta (Amouzandeh et al., 2019), los efectos de AA en los resultados dietéticos en jóvenes y adolescentes (Bailey et al., 2019; Vaitkeviciute et al., 2015), el diseño de herramientas de AA para escuelas secundarias (Nanayakkara et al., 2017); y las herramientas de evaluación que logran medir AA (Park et al., 2020; Vidgen & Gallegos, 2014). Los artículos sobre políticas alimentarias se enfocan en cómo las entidades de gobernanza, como los consejos de política alimentaria (*food policy councils*), abordan la política alimentaria en combinación con otros asuntos públicos para forjar nuevas agendas de políticas alimentarias (Maxwell & Slater, 2003; Siddiki et al., 2015). Los artículos sobre educación en sistemas alimentarios hacen hincapié en enfoques pedagógicos progresistas, como la investigación-acción (Hilimire et al., 2014) y la educación crítica en sistemas alimentarios (Meek & Tarlau, 2016). Los artículos sobre AP abarcan estudios sobre medios de comunicación (Lentz, 2014), administración pública (Park & Lee, 2015), estudios sobre alfabetización (Lo Bianco, 2001), estudios sobre discapacidad y rehabilitación (Ohajunwa et al., 2019) y estudios sobre privacidad digital social e informática (Smith et al., 2017).

A pesar de esta creciente bibliografía, la cantidad de artículos que abordan explícitamente la alfabetización en el contexto de la política alimentaria es limitada. Un sólo artículo hace referencia explícita a la "alfabetización en política alimentaria" (*food policy literacy*). Hilimire et al. (2014) presentan la APA como una de las muchas habilidades prácticas que se adquiere en los programas de educación sobre sistemas alimentarios sostenibles. Los autores identifican la APA como una "destreza específica de la industria" (Hilimire et al., 2014, p. 730), pero no detallan cómo se define dicha destreza, cómo se adquiere, quién la adquiere, ni con qué fin.

Al conectar la literatura sobre la alfabetización política con la alfabetización alimentaria, pretendo aclarar el concepto de alfabetización (crítica) en política alimentaria. La AP y la AA son conceptos relacionados. Partiendo del trabajo de Rosch y Mervis (1975), se puede decir que la AP y la AA tienen un "parecido familiar": una relación "que consiste en un conjunto de elementos de la forma AB, BC (…) en la que cada ítem tiene al menos uno, y probablemente varios, elementos en común con otro u otros ítems, pero ningún elemento, o pocos, son comunes a todos los ítems" (p. 575). La identificación de elementos compartidos entre conceptos o ítems en la literatura apoya la conceptualización de conceptos nuevos o por definir. Podsakoff et al. (2016) sugieren que una "buena definición conceptual debe identificar el conjunto de características fundamentales o atributos clave que son comunes (y potencialmente únicos) al fenómeno de interés" (p. 7), un cometido que busco abordar con respecto a la ACPA.

La siguiente sección resume los estudios sobre AP y AA para identificar el conjunto de elementos compartidos que caracterizan a cada concepto. La identificación de estas características comunes aclara los principios básicos para conceptualizar una ACPA que apoye la transformación del sistema alimentario liderada por la comunidad.

¿Cómo define la academia la alfabetización política?

Académicos de diversos campos, como la educación, las comunicaciones, la privacidad digital, los estudios sobre discapacidad y los estudios sobre innovación gubernamental, han definido el concepto de alfabetización política. Los investigadores defienden la importancia de una mayor AP para desarrollar el potencial democrático de la sociedad. En la revisión, encontré una limitada cantidad de artículos que definan la AP. Sin embargo, los artículos encontrados ofrecen información valiosa sobre la educación en AP, estrategias para examinar las políticas a través de experiencias personales/emocionales, y cómo la AP puede conducir a compromisos políticos más allá del proceso político formal. En general, la AP consta de cuatro áreas temáticas: (a) involucrarse con información crítica, (b) ir más allá de la concienciación pasiva de los servicios gubernamentales, el voto y el consumo concienzudo de información, (c) enseñado a través

de la examinación de las políticas locales, (d) adquirido a través de una práctica situada.

La comprensión crítica de las políticas es necesaria para una participación política informada: Investigadores de la comunicación mediática consideran la AP como un "contrapeso a las agendas neoliberales de la educación mediática" (Lentz, 2014, p. 137) que puede desafiar los objetivos de desregulación y liberalización de los medios digitales y las empresas de plataformas de comunicación (véase Flew et al., 2019). Los investigadores consideran que la AP es una "condición previa para la participación informada," en particular para quienes defienden el interés público (Lentz, 2014, p. 138). La definición ampliamente citada de Lo Bianco describe la AP como aquello que es "necesario para desplegar, participar y comprender los acontecimientos políticos... la comprensión crítica del proceso, la historia y los dilemas del proceso general de la elaboración de políticas públicas para contribuir a una participación más reflexiva y plena en sus procesos" (Lo Bianco, 2001, p. 213). Es la capacidad de identificar y comprender las políticas a través de la información y el conocimiento y es fundamental para la participación y la democracia. Así pues, la AP es a la vez una condición previa para una participación más plena y reflexiva en los procesos políticos y/o para la resistencia a los mismos.

Más allá de conocer los servicios públicos disponibles, votar y consumir concienzudamente la información: Los investigadores sobre alfabetización política sugieren que ser políticamente competente va más allá de conocer cuáles son los servicios gubernamentales existentes, votar y consumir información concienzudamente. De manera reduccionista, algunos académicos sostienen que la alfabetización política puede medirse por el grado de conocimiento de los ciudadanos sobre los programas de servicios públicos (Park y Lee, 2015). En cambio, especialistas en comunicación y medios digitales sostienen que la AP va más allá del mero conocimiento del alcance y los tipos de servicios que prestan los gobiernos. La AP es una estrategia empoderadora y dinámica que tiene el potencial de dotar a la sociedad de la "capacidad de producir cambios políticos" (Lentz, 2014, p. 136). Lentz (2014) califica la AP como la "mejor

defensa contra las amenazas a los medios democráticos" (p. 135), ya que proporciona a los individuos un "sentido de ciudadanía que más allá del voto o del consumo consciente" de productos mediáticos (p. 137).

Se enseña a través de la examinación de documentos de política local junto con experiencias vividas para apoyar el aprendizaje auténtico: Algunos académicos han explorado la enseñanza de AP a través del aprendizaje basado en la práctica y la examinación de documentos de políticas locales. Ohajunwa et al. (2019) comparten un ejemplo empírico detallado de un programa de educación formal para adultos diseñado para mejorar la AP en el trabajo de discapacidad y rehabilitación. El curso se estructuró en tres secciones: análisis de políticas, implementación y seguimiento. El curso animó a los estudiantes a examinar críticamente los documentos de política del gobierno local en términos de "objetivos, discurso, voces dominantes/ silenciadas, audiencia prevista, texto y subtexto, lenguaje utilizado, el contexto de la formación y las posibles negociaciones realizadas" (p. 35). El curso analizó políticas ya aprobadas y motivó a los estudiantes a reflexionar sobre lo que podría haber informado la planificación y la implementación de las políticas. Los autores señalan que los estudiantes percibían el aprendizaje de la AP como algo ajeno, impuesto, en lugar de algo en lo que ellos tenían un papel para incidir. Los autores creen que la brecha entre la política y las expectativas del estudiantado en cuanto a los resultados de la política se debe a que "las políticas se forman en espacios alejados de las realidades de su implementación y de las desigualdades que las deberían informar" (p. 39). Para acercar la política a los estudiantes, el curso utilizó tres métodos principales para mejorar la AP: "aprendizaje situado, resolución de problemas en colaboración y escenarios basados en objetivos" (p. 38). Además, el curso motivó a los estudiantes a examinar críticamente las políticas con sus experiencias personales /emocionales para garantizar que los debates sobre las políticas se centraran en lo que a los estudiantes les importaba y en su identidad. Este trabajo sugiere que la concienciación política es posible cuando la educación en AP permite "una contextualización del aprendizaje, de modo que el propio

contexto político y las experiencias personales, so-
ciales, políticas y culturales [del alumno] se constru-
yan dentro de un... marco que apoye el aprendizaje
auténtico" (p. 39).

*Adquirida a través de la participación en procesos de elabo-
ración de políticas situadas:* Académicos sugieren que
la AP se consigue mejor cuando las personas parti-
cipan en procesos de elaboración de políticas situa-
das y aprenden sobre las tensiones, las luchas de
poder y la no linealidad de los procesos. Centrán-
dose en la idea de la democracia participativa real,
Lo Bianco (2001) puntualiza en el conocimiento
necesario para que la formulación de políticas sea
democrática, considerando el proceso de formula-
ción de políticas como el "principal vehículo en las
sociedades democráticas para establecer la inter-
vención deseada y determinar la asignación de re-
cursos" (p. 213). Considera que la AP se encuentra
continuamente en tensión entre "'política' (poder)
e 'información' (conocimiento)," y está influida por
el lenguaje y la cultura, así como por las reivindica-
ciones de legitimidad de las distintas partes intere-
sadas para actuar en la formulación de políticas (p.
214). Estos factores hacen que el proceso político
sea "no lineal y se inserte en contextos sociohistóri-
cos cambiantes" (Breckwich Vásquez et al., 2007,
p. 344). Breckwich Vázquez et al. (2007) describen
el proceso de elaboración de políticas, que tanto
configuran el contenido, el curso, el ritmo y el
desarrollo de las políticas, como contribuyen a su
éxito, que consisten usualmente en "la definición
del problema o la identificación de un asunto; el es-
tablecimiento de la agenda; la decisión sobre la po-
lítica a seguir, y la aplicación de la política" (p. 344).

Los procesos de elaboración de políticas no es-
tán exentos de luchas de poder. Lo Bianco (2001)
presta especial atención a las luchas de poder entre
el sector privado y el gobierno. Propone que se ne-
cesitan "modalidades informadas de activismo polí-
tico" para minimizar las repercusiones de las políti-
cas que desplazan "el esfuerzo nacional hacia el
sector privado" al tiempo que reducen la actividad
gubernamental destinada a servir a las comunidades
(p. 213). En otras palabras, investigadores de la AP
sugieren que el activismo y otras acciones políticas
"no oficiales" son esfuerzos necesarios contra las
políticas neoliberales, especialmente si el proceso

oficial de elaboración de políticas y el resultado de
las políticas perjudican a las comunidades desfavo-
recidas (Ilieva, 2020). Por lo tanto, estar alfabeti-
zado en políticas no es sólo ajustarse a los procedi-
mientos, pasos y estructuras políticas existentes,
sino también desafiar las estructuras actuales y
transformarlas en "procesos políticos populares"
(Rose & Lourival, 2019).

¿Cómo define la academia la alfabetización alimentaria?

El término "alfabetización alimentaria" ha cobrado
fuerza en todo el mundo, por ejemplo, Thompson
et al. (2021) han identificado 51 definiciones de
AA. Las conceptualizaciones de la AA en la litera-
tura académica varían enormemente. Algunos auto-
res ofrecen definiciones más bien individualistas y
limitadas, mientras que otros ofrecen explicaciones
más sistémicas (e incluso críticas). Esta sección
ofrece ejemplos de la diversidad de definiciones, así
como críticas de las conceptualizaciones actuales de
la AA y su exclusión de la "política."

*Implica conocimientos, habilidades y comportamientos a ni-
vel individual:* Académicos especializados en la ali-
mentación han destacado la importancia de la AA a
nivel individual, y algunos de ellos definen la AA
como los "conocimientos, habilidades y comporta-
mientos personales necesarios para acceder, selec-
cionar, preparar y consumir alimentos" (Velardo,
2015, p. 387), las habilidades necesarias para inter-
pretar el etiquetado nutricional de la parte frontal
del producto (Feteira-Santos et al., 2020) y "los
comportamientos relacionados con la planificación,
la compra, la preparación y el consumo de alimen-
tos; fundamentales para lograr ingestas dietéticas
saludables" (Begley et al., 2018, p. 1).

*Se adapta a las circunstancias cambiantes a lo largo de la
vida:* Académicos señalan que la AA es dinámica y
adaptativa, "desarrollada a lo largo de la vida de
una persona y adaptada a las circunstancias cam-
biantes, como mudarse, cambiar el tamaño del ho-
gar (ej., el nacimiento de hijos), las circunstancias
económicas (ej., el cambio en los niveles de ingre-
sos) y los factores de estilo de vida (ej., el diagnós-
tico de una enfermedad relacionada al estilo de
vida, como la diabetes o la hipertensión arterial)"

(Begley et al., 2018, p. 12). En lugar de ser estática, la AA se adapta a los cambios circunstanciales.

Conocimiento de los procesos, la información y las actividades del sistema alimentario por parte de los consumidores: Fernández et al. (2020) sugieren que la AA permite a las personas navegar por el proceso de selección, preparación y consumo de alimentos ricos en nutrientes. Palumbo et al. (2019) ofrecen una visión más amplia, la "capacidad de recopilar, comprender, procesar y utilizar información relevante para navegar por el sistema alimentario" (p. 104). Otros académicos listan el sistema alimentario como uno de los temas clave de la AA. Basándose en una revisión de 67 artículos, Truman et al. (2017), por ejemplo, caracterizan la AA en seis temas centrales: (a) habilidades y comportamientos, (b) elecciones de alimentos/salud, (c) cultura, (d) conocimiento, (e) emociones y (f) sistemas alimentarios. Rose y Lourival (2019) proponen considerar la alfabetización crítica del sistema alimentario como un proyecto dialéctico contrahegemónico para democratizar el sistema alimentario.

¿Puede la alfabetización alimentaria ir más allá de la satisfacción de las necesidades individuales de consumo de alimentos? Una de las definiciones de AA más citadas es la de las investigadoras australianas Vidgen y Gallegos (2014), cuyo trabajo se cita con frecuencia en cuanto a evaluaciones de programas de alfabetización alimentaria en Australia, Francia, Países Bajos, Italia y Estados Unidos (Amouzandeh et al., 2019). Definen la alfabetización alimentaria como el "andamiaje que empodera a las personas, hogares, comunidades o naciones para mejorar la calidad de la dieta y apoyar la resiliencia dietética a lo largo del tiempo" y "una colección de conocimientos, habilidades y comportamientos interrelacionados necesarios para planificar, administrar, seleccionar, preparar y comer alimentos para satisfacer las necesidades y determinar la ingesta (de alimentos)" (p. 54). Sugieren que la AA tiende a contribuir a resultados beneficiosos más allá de la nutrición y lo que especifican como los cuatro dominios de la AA (planificar y gestionar, seleccionar, preparar y comer), aunque no indican qué resultados ni cómo. Las políticas alimentarias no se discuten explícitamente en su definición.

Críticas a las definiciones conceptuales actuales de la alfabetización alimentaria y la exclusión de políticas

Varios académicos han demostrado inconsistencias en la literatura en cuanto a cómo se entiende y define la alfabetización alimentaria (Bailey et al., 2019; Perry et al., 2017; Rosas et al., 2021; Sumner, 2015; Thompson et al., 2021). Sumner (2015) sostiene que la falta de consenso sobre la AA es problemática, ya que "varias partes interesadas maniobran para controlar su significado y así moldear políticas que sirvan a sus intereses" (p. 128). Otros estudiosos señalan que la falta de coherencia en las definiciones de AA, limita el desarrollo de una medida válida y fiable para evaluar los programas que buscan promover la AA (Bailey et al., 2019). Sumner (2015) sugiere que una posible explicación para esta falta de consenso se encuentra en los orígenes controversiales tanto de la "alimentación" como la "alfabetización," ya que ambas tienen que ver con el poder: "restringir la alfabetización alimentaria a las actitudes, habilidades y conocimientos de los hogares reduce los parámetros del debate sobre la alfabetización alimentaria y sirve a ciertos intereses poderosos, al tiempo que desincentiva la crítica más amplia necesaria para transformar la crisis del sistema alimentario mundial en uno que garantice que todos estén alimentados, dentro de los límites ecológicos del planeta" (p. 129). Por lo tanto, ella sugiere que las siguientes preguntas son cruciales: ¿Qué sabe la gente cuando adquiere conocimientos sobre la alimentación? ¿Y quién se beneficia o pierde cuando una determinada definición de la AA se convierte en la norma? Sumner (2015) se basa en el trabajo de Freire para ampliar la idea de la AA más allá de simplemente responsabilizar a los individuos de la compra, la seguridad y el presupuesto de los alimentos:

> La capacidad de "leer el mundo" en términos de alimentos, recreándolo y rehaciéndonos a nosotros mismos. Implica comprender el ciclo completo de los alimentos: dónde se cultivan, cómo se producen, quién se beneficia y quién pierde cuando se compran, quién tiene acceso (y quién no) y adónde van a parar cuando terminamos de consumirlos. Incluye una apreciación del significado cultural de los

alimentos, la capacidad de preparar comidas sanas y tomar decisiones saludables, y el reconocimiento de las implicaciones medioambientales, sociales, económicas, culturales y políticas de esas decisiones. (Sumner, 2013, p. 86)

Del mismo modo, Stinson (1998), como se cita en Sumner (2015), sugiere que la AA debe ser una herramienta para ejercer la ciudadanía, mejorando "las habilidades de pensamiento crítico necesarias para analizar los aspectos interrelacionados del sistema alimentario" (p. 24), y permitiendo a las personas una "mayor comprensión de la conexión entre los alimentos, ellos mismos, y el mundo en general" (p.41). Sumner (2015) logra ampliar la definición de la AA de una manera que se acerca a la conceptualización de la alfabetización en política alimentaria, incluso afirmando que los esfuerzos para promover la AA también deben integrar la política. Similarmente, Rosas et al. (2021) y Rowat et al. (2021) señalan que la política se ha dejado fuera de las conceptualizaciones anteriores de la AA. Rosas et al. (2021) sugieren que la política debería considerarse un factor influyente para la AA (ej. regulación para promover el consumo saludable). De la misma manera, Rowat et al. (2021) incluyen la política y la economía como componentes de su marco de AA. Rowat et al. (2021) afirman que para cambiar las "maquinaciones políticas y económicas [que] permiten a las grandes corporaciones de alimentos dominar el panorama alimentario monopolizando los mercados e influyendo en la investigación nutricional," se necesita una población instruida en los fundamentos políticos y económicos del sistema alimentario (p. 2). Estos últimos autores integran la política dentro del concepto de AA. Yo sostengo que la alfabetización en política alimentaria (APA) posibilita una reclamación explícita de esta laguna de conocimiento—es decir, qué significa estar alfabetizado en políticas alimentarias—y sugiero las políticas alimentarias a nivel municipal como un espacio importante para la conceptualización de la APA.

La alfabetización en política alimentaria y las políticas alimentarias municipales

Las políticas alimentarias a nivel municipal son cada vez más una herramienta central para fortalecer las transformaciones de las políticas alimentarias locales (Candel, 2020; Morley & Morgan, 2021) y descentralizar los procesos para que sirvan a las necesidades localizadas de las comunidades. Las comunidades aprenden en la práctica cómo las políticas alimentarias de sus respectivas municipales se insertan en estructuras de gobernanza a múltiples niveles y se interrelacionan con otros tipos de políticas (Raja et al., 2014, 2018). Algunos ejemplos de políticas a nivel municipal son (a) "soft policies" (resoluciones, declaraciones, estudios, etc.); (b) planes (planes oficiales con mirada integral al sistema alimentario, planes para un componente del sistema alimentario y planes alimentarios incluidos en planes integrales, así como planes de espacios abiertos, planes de salud comunitaria, planes de subáreas y planes estratégicos, etc.); (c) ordenanzas, estatutos y reglamentos vinculantes (ordenanzas de zonificación, directrices de subdivisión, etc.); (d) acciones que proporcionen infraestructura física; (e) decretos fiscales que influyan en los sistemas alimentarios comunitarios (fondos, licencias y tarifas para el sistema alimentario, etc.) (Mui et al., 2018; Raja et al., 2018). Las políticas alimentarias municipales han probado ser cada vez más innovadoras en las estructuras de gobernanza a través de la creación de consejos de política alimentaria—organizaciones cívicas o cuasi públicas que desarrollan procesos políticos sensibles al contexto e informados localmente en relación con los alimentos —(Gupta et al., 2018), la contratación de personal de planificación alimentaria y el apoyo a grupos de trabajo interinstitucionales, por ejemplo, uniendo los campos de la planificación y la salud pública (Mui et al., 2018). El creciente interés por la política alimentaria a escala municipal es especialmente evidente a través del número cada vez mayor de consejos de política alimentaria en Estados Unidos y Canadá.[3]

Como consecuencia de las iniciativas de los actores comunitarios, cientos de gobiernos municipa-

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[3] Hasta el 2019, la cantidad de consejos de políticas alimentarias en Estados Unidos y Canadá representaban un total de 351, además de 13 convocadores de consejos de políticas alimentarias. https://clf.maps.arcgis.com/apps/webappviewer/index.html?id=cd9c3625d9b34d728e58d3f3af95a5ed

les, de condado y regionales han desarrollado planes y políticas alimentarias y agrícolas destina-dos a fortalecer los sistemas alimentarios, según ha identificado el equipo de Growing Food Connections (GFC).[4] Por ejemplo, organizaciones no gubernamentales como DC Greens[5] han ayudado a aprobar leyes como la Ley de Apoyo a los Mercados de Agricultores de DC, la Ley de Agricultura Urbana y Seguridad Alimentaria y la Ley de Escuelas Saludables. Además, desde 2015 cientos de ciudades han firmado el Pacto de Política Alimentaria Urbana de Milán, un pacto voluntario que insta a los municipios a participar en políticas alimentarias integradas (Sibbing & Candel, 2021).

A pesar del crecimiento de las instituciones municipales de política alimentaria y de los espacios que pudieran convertirse en centros de aprendizaje y de intercambio de información sobre cómo fortalecer, contextualizar y transformar los sistemas alimentarios, los procesos de política alimentaria y las herramientas políticas (como los ejemplos mencionados anteriormente) siguen siendo ajenos para muchas comunidades (Clark et al., 2017; Coplen & Cuneo, 2015; Schiff, 2008). La APA se ve obstaculizada por el acceso limitado a información y espacios que sean útiles o comprensibles para las comunidades en los procesos de toma de decisiones políticas (explorados en mayor detalle en la siguiente sección). Sin embargo, la política alimentaria es multidimensional, lo que ofrece oportunidades para que las necesidades e intereses comunitarios localizados y diversos se adopten a diferentes escalas, se apliquen a diversas geografías y procesos, y se dirijan a distintos componentes del sistema alimentario.

¿Por qué se ha definido de forma limitada la alfabetización en políticas alimentarias?

En esta revisión, sostengo que existen al menos cuatro explicaciones para que la APA se defina de forma limitada en la literatura y, en consecuencia, apenas se cuestione. En primer lugar, las políticas alimentarias, en general, han tendido a centrarse en acciones individuales (es decir, votar con el tene-

dor, consumismo verde, etc.), o en el "consumo como política" individual (Holt Giménez & Shattuck, 2011), en lugar de en soluciones sistémicas (Rose & Lourival, 2019). Por ejemplo, Razavi et al. (2020), afirman que "durante casi 50 años, la salud pública y las recomendaciones clínicas se han centrado en la educación de los consumidores, el cambio de comportamiento y, en menor medida, la política alimentaria para reducir la ingesta de sodio entre los estadounidenses" (p. 1). Del mismo modo, otros especialistas añaden que "no se le pide a la gente que vuelva a conectar con el contexto —con la tierra, el trabajo (y la mano de obra), la historia o el lugar —sino con el interés propio y el apetito personal" (Andrée et al., 2015; DeLind, 2011, p. 279). Para Szabady (2014):

> centrarse en el individuo como sujeto de la elección de alimentos en los discursos alimentarios no sólo resta importancia al papel de los poderosos intereses de la agroindustria en la creación de un sistema alimentario que sirva a sus fines económicos, sino que también ha creado un entorno en el que las críticas a menudo se centran estrictamente en las acciones en el punto de compra, en lugar de generar cambios fundamentales en la cadena de producción. (p. 638)

En segundo lugar, las dimensiones políticas suelen quedar fuera de los currículos y programas de formación en AA, lo que conlleva un riesgo pedagógico, como se ha documentado en el campo de la educación ambiental (Rose & Lourival, 2019; Slimani et al., 2021). Al despolitizar los currículos se corre el riesgo de que los estudiantes den por sentado el "conflicto" medioambiental y de que las escuelas tiendan a "restar importancia a lo político y a reproducir una homogeneidad política" (Slimani et al., 2021, p. 3). Al igual que en la educación medioambiental, la educación sobre sistemas alimentarios que enfatiza en el conocimiento técnico tiende a dejar sin cuestionar la organización actual del sistema alimentario (Meek & Tarlau, 2016; Rivera-Ferre et al., 2021).

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[4] https://growingfoodconnections.org/tools-resources/policy-database/
[5] https://www.dcgreens.org/policy-1

Una tercera explicación, a escala mundial, es que de los debates dominantes obvian los temas relacionados con el cambio de políticas y, si se adoptan, tienden a aplicarse como cambios menos intrusivos en los países desarrollados y en el Norte Global. Bhawra et al. (2018) afirman que en "Canadá, Estados Unidos, Australia, Nueva Zelanda y varios países europeos, las personas tienden a apoyar más las intervenciones que son menos intrusivas (es decir, etiquetado de menús y campañas educativas) en comparación con intervenciones políticas más estrictas (como, impuestos y regular prohibiciones)" (p. 503).

En cuarto lugar, las barreras técnicas y formalistas impuestas a la elaboración y aplicación de políticas alimentarias podrían estar diseñadas para limitar la participación ciudadana e incapacitar a los grupos afectados para dar forma a las decisiones de política alimentaria. Bajo gobiernos tecnocráticos, la APA podría interpretarse como irrelevante (Ilieva, 2020). Los regímenes de gobierno tecnocráticos controlan la recopilación de información y legitiman cuál es el conocimiento necesario para la formulación de políticas (es decir, la economía y el racionalismo de la eficiencia), situando a los expertos y profesionales "por encima de la ideología, de los intereses y del conflicto de diferentes tipos de conocimiento y sistemas del saber" (Lo Bianco, 2001, p. 222). Así, las técnicas políticas terminan "elevando las barreras de entrada al debate [político]" y "reduciendo el espacio para la expresión de valores y la afirmación de las preferencias de las comunidades" (Lo Bianco, 2001, p. 224). En estas circunstancias, el conocimiento de la política alimentaria representa un frente de organización política crucial.

Más allá de la alfabetización alimentaria y la alfabetización política: Conceptualización de la alfabetización crítica en política alimentaria

Cuando las comunidades carecen de la capacidad de descifrar y navegar por los procesos de formulación de políticas alimentarias de los gobiernos locales, las transformaciones estructurales por la equidad en el sistema alimentario se quedan fuera de su alcance. Esta sección se basa en estudios sobre alimentación y política, así como en la teoría de la al-

fabetización crítica, para dilucidar los principios de la ACPA. Estos principios pretenden reducir el riesgo de cooptación del significado de la APA (es decir, reducirla a una habilidad específica de la industria, reducir lo político a un componente del concepto de AA y limitar la APA al conocimiento de los servicios del gobierno relacionados con la política alimentaria). Los cinco principios (Tabla 1) se centran en la participación cotidiana de la comunidad en la formulación, planificación y aplicación de políticas sobre sistemas alimentarios, especialmente en la escala de la política municipal.

1. *La alfabetización crítica en políticas alimentarias fomenta una conciencia relacional de la posición de cada persona y las posiciones colectivas en el* **mundo**: Mientras que en la literatura sobre la AA se hace hincapié en la individualidad (Sumner, 2015), la APA promueve tanto la conciencia individual como la colectiva. En un sistema alimentario globalizado, la "conciencia crítica de cómo las personas están en y con el mundo" es fundamental para la APA, incluso cuando se trata de políticas a nivel municipal. Dicha conciencia requiere que los individuos conozcan su papel en la sociedad, tanto en la esfera privada como en la pública, y dónde les ha situado la sociedad en relación con los demás, seres humanos y no humanos, en el sistema alimentario. Por esto, la ACPA fomenta una conciencia ecológica del sistema alimentario (Gliessman & de Wit Montenegro, 2021). También significa ser conscientes de las desigualdades e injusticias del sistema alimentario y de "quién se beneficia y quién pierde" con las decisiones políticas. Una conciencia crítica implica "una mayor comprensión de la conexión entre los alimentos, las personas y el mundo en general" (Sumner, 2015, p.41). En resumen, desde una perspectiva Freiriana, la ACPA es también la capacidad de "leer el mundo" de los alimentos y los sistemas relacionados, así como de comprender dónde uno se encuentra ubicado en dicho sistema. Por ejemplo, la importación y exportación de alimentos requiere una comprensión crítica "glocal" de sus consecuencias económicas, políticas, sanitarias y medioambientales (Wekerle, 2004). Esta concienciación puede servir de base a cambios políticos liderados por la comunidad para proteger la tierra fértil y la producción local (Wittman et al., 2017).

Tabla 1. Conceptualización de la alfabetización crítica en políticas alimentarias a partir de la relación de parentesco entre alfabetización política y alfabetización alimentaria

Alfabetización política	Alfabetización alimentaria
[3] Condición previa para participar informadamente en las etapas, acciones y procesos políticos (Lentz, 2014; Lo Bianco, 2001)	[1] Mayor comprensión de la relación entre los alimentos, las personas y el mundo en general (Stinson, 1998; Sumner, 2015)
[4] Impartido a través de la examinación de documentos de política local junto a experiencias vividas para favorecer un aprendizaje auténtico (Ohajunwa et al., 2019)	[2] La capacidad de leer la palabra (es decir, el etiquetado nutricional de la parte frontal del envase y los documentos sobre políticas) (Feteira-Santos et al., 2020)
[4] Aprendido a través de la participación en procesos de elaboración de políticas situadas (Breckwich Vásquez et al., 2007; Lo Bianco, 2001)	[3] Conocimiento de los procesos, la información y las actividades del sistema alimentario (Palumbo et al., 2019; Rose & Lourival, 2019)
[5] Más allá del conocimiento de los servicios públicos disponibles, el voto y el consumo consciente (Lentz, 2014)	[4] Se adapta a las circunstancias cambiantes a lo largo de la vida (Begley et al., 2018)
	[5] Más allá de la concienciación y las acciones individuales de los consumidores (Rosas et al., 2021; Rowat et al., 2021; Sumner, 2015)

Nota: Se identificaron elementos compartidos entre los conceptos de alfabetización política y alfabetización alimentaria como atributos clave para la conceptualización de la alfabetización crítica de política alimentaria. Los elementos se agruparon en cinco categorías 1–5.

2. *La alfabetización crítica en políticas alimentarias fomenta la capacidad de utilizar información sobre políticas y sistemas alimentarios, por tanto, a leer la* **palabra**: Desde los datos nutricionales hasta el análisis de documentos sobre políticas, la APA fomenta la "capacidad de recopilar, comprender, procesar y utilizar información relevante para navegar por el sistema alimentario" (Palumbo et al., 2019, p. 104) y sus políticas, y fomenta una conciencia sobre el poder y la legitimación de los datos, la información y la comunicación de políticas. La capacidad de descifrar documentos sobre la política de los sistemas alimentarios puede inducir a la gente corriente a ser inconformista en cuanto a "cómo funcionan las instituciones de poder para negarles la igualdad de trato, acceso y justicia" (Freire, 2018, p. 17) a través de la ofuscación en la comunicación política. La APA es una "lectura de la palabra" inconformista y apologética, y una interpretación crítica del lenguaje relacionado con la política alimentaria. Se necesita una atención crítica al discurso del sistema alimentario cuando las comunidades se involucran con las políticas alimentarias municipales, especialmente en la fase de institucionalización, para generar respuestas discursivas que puedan conducir a esfuerzos integrados y comprensivos de política alimentaria (Si-

bbing & Candel, 2021). Por ejemplo, designar los huertos comunitarios como un uso legítimo y permanente del suelo en el plan de una ciudad, requiere un uso claro e inflexible del lenguaje (Wekerle, 2004).

3. *La alfabetización crítica en políticas alimentarias fomenta la comprensión procesal y sistémica de la alimentación y la política:* La formación de políticas y el sistema alimentario se mueven a través de fases, acciones o procesos "no lineales." Aunque suelen describirse a través de los siguientes pasos "definición del problema o identificación de un asunto; establecimiento de la agenda; decisión sobre la política a seguir; e implementación de la política" (Breckwich Vásquez et al., 2007, p. 344), los procesos de la política alimentaria son dinámicos y están interrelacionados entre gobiernos locales, regionales y federales, diversas agencias gubernamentales, e instituciones. Del mismo modo, los sistemas alimentarios comprenden de una "cadena de actividades que conectan la producción, el procesamiento, la distribución, el consumo y el manejo de residuos de los alimentos, así como todas las instituciones y actividades reguladoras asociadas" (Pothukuchi & Kaufman, 2000, p.113). Las comunidades pueden

participar mejor en estos procesos cuando son conscientes de los procesos políticos habituales y de sus interrelaciones con la cadena de actividades del sistema alimentario en sus contextos locales. Este conocimiento es tanto una "comprensión del ciclo completo de los alimentos" (Sumner, 2013, p. 86) como una "comprensión crítica del proceso, la historia y los dilemas prácticos general de la elaboración de políticas públicas" (Lo Bianco 2001, p. 213). En la práctica, los municipios no tienen necesariamente un "enfoque completo de los sistemas alimentarios desde el principio" (Sibbing & Candel, 2021, p. 580), pero las comunidades integran asuntos alimentarios puntuales como un paso inicial y empiezan desde el establecimiento de agendas políticas, 'charters' y estrategias alimentarias, hasta el desarrollo de políticas más institucionalizadas. No obstante, como ya se ha dicho, el activismo político y las estrategias "no oficiales" son elementos legítimos del proceso de participación política si los procesos "oficiales" de elaboración de políticas no benefician a las comunidades desfavorecidas.

4. *Las alfabetizaciones críticas sobre políticas alimentarias se enseñan y se aprenden contextualmente a través de la práctica auténtica:* La alimentación y las políticas se ven influidas por las características culturales, socioeconómicas y medioambientales de determinadas geografías. Por lo tanto, la APA se enseña y se aprende dentro de contextos particulares, redundando finalmente en una pluralidad y coexistencia de múltiples alfabetizaciones contextualizadas. Como afirman Meek y Tarlau (2016), la exposición directa a las políticas y procesos alimentarios, pueden promover el análisis de cuáles son las razones políticas y económicas que permiten la existencia del sistema alimentario actual. Al igual que la AP, la APA puede enseñarse a través del "aprendizaje situado, la resolución colaborativa de problemas y la elaboración de escenarios basados en objetivos" (Ohajunwa et al., 2019, p. 38). Siguiendo a Ohajunwa et al. (2019), la APA debe conectar con las experiencias personales/emocionales, y con lo que les importa a las comunidades y su sentido de sí mismas, manteniéndose relevante para las preocupaciones y prioridades de la comunidad. La práctica cognitivo-emocional de la APA es dinámica, "desarrollada a lo largo de la vida de una persona y

adaptada a circunstancias cambiantes" (Begley et al., 2019, p. 12), como por ejemplo una pandemia mundial. La relevancia, el sentido de sí mismo y la adaptabilidad a las circunstancias para centrar en aquellos asuntos de la política alimentaria que sean seleccionados por las comunidades, permite "establecer objetivos para el sistema alimentario o sus partes—y determinar el proceso para alcanzar estos objetivos" (Pinstrup-Andersen & Watson, 2011, p. 29). La APA permite a las comunidades impulsar políticas alimentarias que les sirvan en función de lo que más valoran y necesitan (Mah & Thang, 2013). Potencialmente, las comunidades alfabetizadas en política alimentaria son capaces de adaptar las soluciones de política alimentaria municipal a sus necesidades, en lugar de elegir entre un "menú" hipotético de posibles intervenciones en el sistema alimentario (Candel, 2020). No obstante, se necesita apoyo institucional para facilitar estas prácticas. Por ejemplo, programas para la APA podrían facilitar el acceso a información sobre políticas municipales (es decir, "soft policies," planes, ordenanzas, reglamentos y normativas fiscales, etc.) que sean de interés para las comunidades y garantizar una reflexión crítica sobre cómo repercuten estas políticas en sus vidas y cómo podrían servirles mejor.

5. *La alfabetización crítica en políticas alimentarias cuestiona las asimetrías de poder y el conocimiento para una acción colectiva y transformadora:* Motivadas por las experiencias vividas y la heterogeneidad de las identidades, y en reacción al sistema alimentario dirigido por las corporaciones, las comunidades alfabetizadas en políticas alimentarias "negocian el mundo en el que se encuentran" (Freire, 2018, p.1). Las comunidades afrontan las asimetrías de poder/conocimiento cuando son conscientes de que "aquellos que tienen la capacidad de afirmar lo que es verdad [en relación con el sistema alimenta-rio], tienen una aserción de poder" (Stehr & Adolf, 2018, p. 5). La ejecución del sentido de responsabilidad social y justicia de las personas va "más allá del voto o del consumo consciente" de alimentos (Lentz, 2014, p. 137), más allá de las elecciones, la democracia representativa o las acciones individuales de "votar con el tenedor" (Singer & Mason, 2006). Más bien, la APA conduce a la "interrupción [colectiva] de lo común" a través de la acción refle-

xiva y hacia la creación de una praxis de liberación (Freire, 2018). Con esta conciencia, las comunidades se resisten a las "agendas de desregulación y liberalización" (Lentz, 2014, p. 137) en el sistema alimentario, y se enfrentan a la dominación corporativa agroalimentaria que tanto monopoliza los mercados como influye en la investigación (Rowat et al., 2019). Aprender a negociar el mundo con la "capacidad de provocar el cambio político" (Lentz, 2014, p. 136) significa que el compromiso o la resistencia a los procesos de política alimentaria, desde la escala municipal a la global, requieren de la participación activa de otros actores del sistema alimentario; especialmente, de aquellos que se ven desalentados o desincentivados a participar en la configuración de las políticas alimentarias que debería estar a su servicio. Redes de personas, grupos y organizaciones están desafiando a los sistemas alimentarios industriales a través de su "poder de convocatoria" y, en última instancia, gobernando la alimentación más allá de la simple abogacía política (Clark et al., 2021; Roberts, 2014) y hacia respuestas más progresistas y radicales al régimen alimentario corporativo (Holt Giménez y Shattuck, 2011).

Conclusión

En este escrito he explorado el "parecido familiar" de AA y AP, junto con las alfabetizaciones críticas, para obtener una claridad conceptual sobre la ACPA. También he identificado la alfabetización vinculada a la alimentación y la política, así como las implicaciones de la APA para las transformaciones de la política del sistema alimentario a escala municipal.

He prestado especial atención a las políticas del sistema alimentario a escala municipal, una escala cada vez más integrada en las estructuras de gobernanza y en las decisiones descentralizadas de política alimentaria. Además, he enfatizado quién debe ser incluido en los procesos de elaboración de políticas, y en la conciencia (cognitiva y emocional) necesaria para participar e interpretar las políticas y la planificación del sistema alimentario. De hecho, los desequilibrios entre conocimiento y poder influyen tanto en la planificación participativa y el proceso político como en la conceptualización de las definiciones. La conceptualización de las definiciones debe basarse en el compromiso con las personas a

las que pretenden servir. Sugiero, al igual que Sumner (2015), que la conceptualización de la APA debe preguntar "¿quién se beneficia de estar alfabetizado en política alimentaria?" y "¿quién se beneficia o pierde cuando una definición particular de APA se convierte en la norma?"

Una comprensión más clara de la ACPA podría aumentar la participación e involucramiento de las comunidades, cambiando el poder y el conocimiento para permitir acuerdos de gobernanza que doten a las comunidades de los medios para transformar sus sistemas alimentarios. La diferencia conceptual entre la AA, por un lado, y la APA, por otro, tiene implicaciones políticas y normativas para el cambio transformador de los sistemas alimentarios. Mientras que la primera carece de una comprensión a nivel sistémico de cómo el panorama político impacta y es impacta-do por el sistema alimentario, la segunda proporciona una comprensión crítica de estas dinámicas a nivel sistémico y de las relaciones de poder que condicionan la concienciación, el conocimiento, el involucramiento y la incidencia de la comunidad dentro del sistema alimentario.

Basándome en el trabajo de Freire, sugiero que los esfuerzos para promover la ACPA deben facilitar a las comunidades a (a) "leer el mundo," (b) "leer la palabra," (c) ser conscientes de forma crítica de los procesos y sistemas de la política alimentaria, (d) lograr un aprendizaje contextualizado y a través de la práctica auténtica, y (e) obtener la capacitación necesaria para negociar y transformar su comunidad de forma colectiva. Estos cinco principios pueden ser un punto de partida para teorizar, planificar, ejecutar y poner a prueba los esfuerzos de educación y formación en política alimentaria. Las iniciativas sobre la ACPA deben apoyar a quienes se encuentran más oprimidos por el actual sistema alimentario corporativo global. Su falta de conocimiento o concienciación sobre los procesos de la política alimentaria no es una justificación razonable para su exclusión. Por el contrario, quienes se dedican a la política alimentaria, incluyendo los planificadores de sistemas alimentarios, deberían facilitar el intercambio de conocimientos con las comunidades para garantizar la definición precisa de los problemas y las consiguientes soluciones políticas.

Los planificadores de sistemas alimentarios y los formuladores de las políticas alimentarias se beneficiarían de aprender cómo las comunidades forman y practican la APA. Las comunidades ya están participando en las transformaciones del sistema alimentario desafiando a las corporaciones multinacionales y los paradigmas neoliberales, y ampliando las alfabetizaciones relacionadas con la alimentación sobre políticas alimentarias en los diferentes niveles de gobierno (véase la base de datos de la GFC a la que se ha hecho referencia anteriormente). Los planificadores de sistemas alimentarios se beneficiarían de escuchar lo que los activistas alimentarios tienen que decir sobre la formación, la participación y la creación de con-ciencia sobre políticas alimentarias en sus organizaciones y comunidades.

El conocimiento sobre la participación en los procesos de política alimentaria no equivale a la participación real, por lo que también es necesario abordar las barreras estructurales que afectan la participación de las comunidades. Los planificadores y educadores de sistemas alimentarios, especialmente a nivel municipal, deben apoyar a las organizaciones comunitarias locales para que participen en la formulación de políticas alimentarias (Roberts, 2014). Este apoyo debe ir más allá de la medición de la APA de las comunidades, y tener como objetivo reducir las brechas de poder y conocimiento para garantizar la preparación crítica que permita una participación real en las políticas alimentarias.

Investigaciones futuras podrían desarrollar la idea conceptual de ACPA a partir de datos empíricos. Por ejemplo, se pudiera entrevistar a expertos en el sistema alimentario, realizar estudios de caso y grupos focales de profesionales del sistema alimentario, y llevar a cabo trabajo de campo sobre grupos que trabajen políticas alimentarias. Así, se podrían validar los principios básicos de la ACPA incluidos en esta revisión bibliográfica. Los factores específicos de cada contexto deberían tenerse en cuenta, y los actores comunitarios que se insertan en la política alimentaria, deben construir alfabetizaciones y definiciones de política alimentaria que se ajusten a sus situaciones locales. Así, las comunidades pueden conceptualizar sus "propias palabras" y definir y transformar el futuro de sus sistemas alimentarios.

Reconocimientos

References

Amouzandeh, C., Fingland, D., & Vidgen, H. A. (2019). Una revisión exhaustiva de la validez, fiabilidad y alineación conceptual de las medidas de alfabetización alimentaria para adultos [A scoping review of the validity, reliability and conceptual alignment of food literacy measures for adults]. *Nutrients*, *11*(4), Article 801. https://doi.org/10.3390/nu11040801

Andrée, P., Ballamingie, P., & Sinclair-Waters, B. (2015). El neoliberalismo y la creación de políticas alimentarias en el este de Ontario [Neoliberalism and the making of food politics in Eastern Ontario]. *Local Environment*, *20*(12), 1452–1472. https://doi.org/10.1080/13549839.2014.908277

Bailey, C. J., Drummond, M. J., & Ward, P. R. (2019). Programas de alfabetización alimentaria en centros de educación secundaria: Una revisión sistemática de la literatura y una síntesis narrativa de las evidencias cuantitativas y cualitativas [Food literacy programmes in secondary schools: A systematic literature review and narrative synthesis of quantitative and qualitative evidence]. *Public Health Nutrition*, *22*(15), 2891–2913. https://doi.org/10.1017/s1368980019001666

Begley, A., Paynter, E., & Dhaliwal, S. S. (2018). Desarrollo de herramientas de evaluación para programas de alfabetización alimentaria [Evaluation tool development for food literacy programs]. *Nutrients*, *10*(11), Article 1617. https://doi.org/10.3390/nu10111617

Bhawra, J., Reid, J. L., White, C. M., Vanderlee, L., Raine, K., & Hammond, D. (2018). ¿Los jóvenes canadienses apoyan las políticas y normativas propuestas en materia de nutrición? Una visión general del apoyo a las políticas y el impacto de los factores sociodemográficos en la opinión pública [Are young Canadians supportive of proposed nutrition policies and regulations? An overview of policy support and the impact of socio-demographic factors on public opinion]. *Canadian Journal of Public Health*, *109*(4), 498–505. https://doi.org/10.17269/s41997-018-0066-1

Breckwich Vásquez, V., Lanza, D., Hennessey-Lavery, S., Facente, S., Halpin, H. A., & Minkler, M. (2007). Abordando la seguridad alimentaria mediante la adopción de medidas de política pública en una investigación participativa basada en la comunidad [Addressing food security through public policy action in a community-based participatory research partnership]. *Health Promotion Practice*, *8*(4), 342–349. https://doi.org/10.1177/1524839906298501

Cabannes, Y., & Marocchino, C. (2018). *Integrando la alimentación en la planificación urbana* [*Integrating food into urban planning*]. UCL Press. https://doi.org/10.2307/j.ctv513dv1

Candel, J. J. L. (2020). ¿Qué hay en el menú? Evaluación global de las estrategias alimentarias de las ciudades signatarias del MUFPP [What's on the menu? A global assessment of MUFPP signatory cities' food strategies]. *Agroecology and Sustainable Food Systems*, *44*(7), 919–946. https://doi.org/10.1080/21683565.2019.1648357

Clark, J. K., Freedgood, J., Irish, A., Hodgson, K., & Raja, S. (2017). Fallar en incluir, planificar para excluir: Reflexiones sobre la preparación de los gobiernos locales para crear sistemas alimentarios comunitarios equitativos [Fail to include, plan to exclude: Reflections on local governments' readiness for building equitable community food systems]. *Built Environment*, *43*(3), 315–327. https://doi.org/10.2148/benv.43.3.315

Clark, J. K., Lowitt, K., Levkoe, C. Z., & Andrée, P. (2021). El poder de convocatoria: Dar sentido al poder de las organizaciones del movimiento alimentario en los procesos de gobernanza en el Norte Global [The power to convene: Making sense of the power of food movement organizations in governance processes in the Global North]. *Agriculture and Human Values*, *38*(1), 175–191. https://doi.org/10.1007/s10460-020-10146-1

Coplen, A., & Cuneo, M. (2015). Disuelto: Lecciones aprendidas del Consejo de Política Alimentaria de Portland Multnomah [Dissolved: Lessons learned from the Portland Multnomah Food Policy Council]. *Journal of Agriculture, Food Systems, and Community Development*, *5*(2), 91–107. https://doi.org/10.5304/jafscd.2015.052.002

Cullen, T., Hatch, J., Martin, W., Higgins, J. W., & Sheppard, R. (2015). Alfabetización alimentaria: Definición y marco de actuación [Food literacy: Definition and framework for action]. *Canadian Journal of Dietetic Practice and Research*, *76*(3), 140–145. https://doi.org/10.3148/cjdpr-2015-010

Cuy Castellanos, D., Jones, J. C., Christaldi, J., & Liutkus, K. A. (2017). Perspectivas sobre el desarrollo de un sistema alimentario local: El caso de Dayton, Ohio [Perspectives on the development of a local food system: The case of Dayton, Ohio]. *Agroecology and Sustainable Food Systems*, *41*(2), 186–203. https://doi.org/10.1080/21683565.2016.1263893

Dale, C., Robinson, J. S., & Edwards, M. C. (2017). Evaluación de los conocimientos agrícolas de los estudiantes de primer año de una universidad de concesión de tierras [An assessment of the agricultural literacy of incoming freshmen at a land-grant university]. *NACTA Journal*, *61*(1), 7–13. https://www.jstor.org/stable/90004098

DeLind, L. (2011). ¿Nos llevan los alimentos locales y el movimiento alimentario local adonde queremos ir? ¿O estamos enganchando nuestros vagones a las estrellas equivocadas? [Are local food and the local food movement taking us where we want to go? Or are we hitching our wagons to the wrong stars?] *Agriculture and Human Values*, *28*(2), 273–283. https://doi.org/10.1007/s10460-010- 9263-0

Fernandez, M. A., Bertolo, R. F., Duncan, A. M., Phillips, S. M., Elango, R., Ma, D. W. L., Desroches, S., Grantham, A., & House, J. D. (2020). Traducir a los consumidores los "alimentos proteicos" de la nueva Guía Alimentaria de Canadá: Lagunas de conocimiento y recomendaciones [Translating "protein foods" from the new Canada's Food Guide to consumers: Knowledge gaps and recommendations]. *Applied Physiology, Nutrition, and Metabolism*, *45*(12), 1311–1323. https://doi.org/10.1139/apnm-2020-0192

Feteira-Santos, R., Fernandes, J., Virgolino, A., Alarcao, V., Sena, C., Vieira, C. P., Gregorio, M. J., Nogueira, P., Costa, A., Graca, P., & Santos, O. (2020). Efectividad de los esquemas interpretativos de etiquetado nutricional en el frente del envase en la promoción de elecciones alimentarias más saludables: una revisión sistemática [Revisión] [Effectiveness of interpretive front-of-pack nutritional labelling schemes on the promotion of healthier food choices: A systematic review [Review]]. *International Journal of Evidence-Based Healthcare*, *18*(1), 24–37. https://doi.org/10.1097/xeb.0000000000000214

Flew, T., Martin, F., & Suzor, N. (2019). La regulación de Internet como política de medios de comunicación: Repensar la cuestión de la gobernanza de las plataformas digitales de comunicación [Internet regulation as media policy: Rethinking the question of digital communication platform governance]. *Journal of Digital Media & Policy, 10*(1), 33–50. https://doi.org/10.1386/jdmp.10.1.33_1

Foucault, M. (1980). *Poder/Conocimiento: Selección de entrevistas y otros escritos 1972-1977* [*Power/Knowledge: Selected interviews and other writings 1972–1977*] (Ed. C. Gordon). Pantheon.

Freire, P. (1970). *Pedagogía del oprimido* (30mo Aniversario ed.) []. (M. B. Ramos, Trans.). Continuum.

Freire, P. (1976). ¿Son neutrales los programas de alfabetización de adultos? [Are adult literacy programmes neutral?] In L. Bataille (Ed.), [*Un punto de inflexión para la alfabetización* [*A turning point for literacy*] (pp. 195–200). Pergamon. https://doi.org/10.1016/B978-0-08-021385-9.50015-7

Freire, P. (1985). Leer el mundo y leer la palabra: Entrevista con Paulo Freire [Reading the world and reading the word: An interview with Paulo Freire]. *Language Arts*, *62*(1), 15–21. http://www.jstor.org/stable/41405241

Freire, P. (2018). *Pedagogía del oprimido* (50mo Aniversario ed.) [*Pedagogy of the oppressed*]. (M. B. Ramos, Trans.). Bloomsbury Academic.

Frimpong Boamah, E., Sumberg, J., & Raja, S. (2020). La agricultura en un sistema legal dual: Un argumento a favor de la planificación emancipadora de los sistemas alimentarios en Accra, Ghana [Farming within a dual legal land system: An argument for emancipatory food systems planning in Accra, Ghana]. *Land Use Policy*, *92*, Art. 104391. https://doi.org/10.1016/j.landusepol.2019.104391

Fuster, M. (2014). Reseña de libro [*Comer bien en Estados Unidos: La política cultural de la alimentación y la salud*, C. Biltekoff, Duke University Press, 2013] [Book review [*Eating right in America: The cultural politics of food and health*, C. Biltekoff, Duke University Press, 2013]]. *Global Public Health*, *9*(4), 472–473. https://doi.org/10.1080/17441692.2014.895022

Gliessman, S., & de Wit Montenegro, M. (2021). La agroecología en la Cumbre de la ONU sobre sistemas alimentarios [Agroecology at the UN Food Systems Summit]. *Agroecology and Sustainable Food Systems*, *45*(10), 1417–1421. https://doi.org/10.1080/21683565.2021.1976474

Gómez-Benito, C., & Lozano-Cabedo, C. (2014). La construcción de la ciudadanía alimentaria: Premisas teóricas y prácticas sociales [Constructing food citizenship: Theoretical premises and social practices]. *Italian Sociological Review*, *4*(2), 135–156. https://doi.org/10.13136/isr.v4i2.79

Gupta, C., Campbell, D., Munden-Dixon, K., Sowerwine, J., Capps, S., Feenstra, G., & Van Soelen Kim, J. (2018). Consejos de política alimentaria y gobiernos locales: Creación de una colaboración eficaz para el cambio de los sistemas alimentarios [Food policy councils and local governments: Creating effective collaboration for food systems change]. *Journal of Agriculture, Food Systems, and Community Development*, *8*(Suppl. 2), 11–28. https://doi.org/10.5304/jafscd.2018.08B.006

Guthman, J. (2008). El neoliberalismo y la creación de políticas alimentarias en California [Neoliberalism and the making of food politics in California]. *Geoforum*, *39*(3), 1171–1183. https://doi.org/10.1016/j.geoforum.2006.09.002

Hilimire, K., Gillon, S., McLaughlin, B. C., Dowd-Uribe, B., & Monsen, K. L. (2014). Para reflexionar: Elaboración de planes de estudios para programas educativos sobre sistemas alimentarios sostenibles [Food for thought: Developing curricula for sustainable food systems education programs]. *Agroecology and Sustainable Food Systems*, *38*(6), 722–743. https://doi.org/10.1080/21683565.2014.881456

Hillerich, R. (1976). Hacia una definición evaluable de la alfabetización [Toward an assessable definition of literacy]. *The English Journal*, *65*(2), 50–55.https://www.jstor.org/stable/814811

Holt Giménez, E., & Shattuck, A. (2011). Crisis alimentarias, regímenes alimentarios y movimientos alimentarios: ¿rumores de reforma o mareas de transformación? [Food crises, food regimes and food movements: rumblings of reform or tides of transformation?]. *Journal of Peasant Studies*, *38*(1), 109–144. https://doi.org/10.1080/03066150.2010.538578

Ilieva, R. T. (2020). Planificación alimentaria urbana: Una nueva frontera para los constructores de ciudades y sistemas alimentarios regenerativos [Urban food planning: A new frontier for city and regenerative food system builders]. In J. Duncan, M. Carolan, & J. S. C. Wiskerke (Eds.), *Routledge handbook of sustainable and regenerative food systems* (pp. 388–405), Routledge. https://doi.org/10.4324/9780429466823

Lentz, B. (2014). La torre de balbuceos de la política mediática: A case for "policy literacy pedagogy" [The media policy tower of babble: A case for "policy literacy pedagogy."]. *Critical Studies in Media Communication*, *31*(2), 134–140. https://doi.org/10.1080/15295036.2014.921318

Lewison, M., Flint, A. S., & Sluys, K. V. (2002). Asumir la alfabetización crítica: El viaje de los recién llegados y los novatos [Taking on critical literacy: The journey of newcomers and novices]. *Language Arts*, *79*(5), 382–392. http://www.jstor.org/stable/41483258

Lo Bianco, J. (2001). Alfabetización política [Policy literacy]. *Language and Education*, *15*(2–3), 212–227. https://doi.org/10.1080/09500780108666811

Luke, A. (2012). Alfabetización crítica: Notas fundacionales [Critical literacy: Foundational notes]. *Theory Into Practice*, *51*(1), 4–11.https://doi.org/10.1080/00405841.2012.636324

Mah, C. L., & Thang, H. (2013). Cultivando conexiones alimentarias: La Estrategia Alimentaria de Toronto y la deliberación municipal sobre la alimentación [Cultivating food connections: The Toronto Food Strategy and municipal deliberation on food]. *International Planning Studies*, *18*(1), 96–110. https://doi.org/10.1080/13563475.2013.750941

Maxwell, S., & Slater, R. (2003). Políticas alimentarias, lo viejo y lo nuevo [Food policy old and new]. *Development Policy Review*, *21*(5–6), 531–553.https://doi.org/10.1111/j.1467-8659.2003.00222.x

Meek, D., & Tarlau, R. (2016). Educación crítica en sistemas alimentarios (ECSA): Educar para la soberanía alimentaria [Critical food systems education (CFSE): Educating for food sovereignty]. *Agroecology and Sustainable Food Systems*, *40*(3), 237–260. https://doi.org/10.1080/21683565.2015.1130764

Moragues-Faus, A., & Sonnino, R. (2019). Reensamblando ciudades alimentarias sostenibles: Una exploración de la gobernanza translocal y sus múltiples agencias [Re-assembling sustainable food cities: An exploration of translocal governance and its multiple agencies]. *Urban Studies*, *56*(4), 778–794. https://doi.org/10.1177/0042098018763038

Morley, A., & Morgan, K. (2021). Paisajes alimentarios municipales: La política alimentaria urbana y el nuevo municipalismo [Municipal foodscapes: Urban food policy and the new municipalism]. *Food Policy*, *103* Art. 102069. https://doi.org/10.1016/j.foodpol.2021.102069

Mui, Y., Khojasteh, M., Hodgson, K., & Raja, S. (2018). Reincorporación a los ámbitos de la planificación y la salud pública: Aprovechar los planes integrales para reforzar los sistemas alimentarios en una jurisdicción urbana vs. una rural [Rejoining the planning and public health fields: Leveraging comprehensive plans to strengthen food systems in an urban versus rural jurisdiction]. *Journal of Agriculture, Food Systems, and Community Development*, *8*(B), 73–93. https://doi.org/10.5304/jafscd.2018.08B.004

Nanayakkara, J., Margerison, C., & Worsley, A. (2017). Importancia de la alfabetización alimentaria de los estudiantes de secundaria: Opinión de los profesionales del sistema alimentario [Importance of food literacy education for senior secondary school students: Food system professionals' opinions]. *International Journal of Health Promotion and Education*, *55*(5–6), 284–295. https://doi.org/10.1080/14635240.2017.1372695

Ohajunwa, C., Geiger, M., Ned, L., & Luger, R. (2019). Enseñando alfabetización política: Un estudio de caso en el ámbito de los estudios sobre discapacidad y rehabilitación [Teaching policy literacy: A case study from the field of disability and rehabilitation studies]. *Perspectives in Education*, *37*(1), 29–42. https://doi.org/10.18820/2519593X/pie.v37i1.3

Palumbo, R., Adinolfi, P., Annarumma, C., Catinello, G., Tonelli, M., Troiano, E., Vezzosi, S., & Manna, R. (2019). Desentrañar el rompecabezas de la alfabetización alimentaria: La experiencia italiana [Unravelling the food literacy puzzle: Evidence from Italy]. *Food Policy*, *83*, 104–115. https://doi.org/10.1016/j.foodpol.2018.12.004

Park, D., Park, Y. K., Park, C. Y., Choi, M.-K., & Shin, M.-J. (2020). Desarrollo de una herramienta global de medición de la alfabetización alimentaria que integre el sistema alimentario y la sostenibilidad [Development of a comprehensive food literacy measurement tool integrating the food system and sustainability]. *Nutrients*, *12*(11), Art. 3300. https://www.mdpi.com/2072-6643/12/11/3300

Park, E., & Lee, J.-W. (2015). Un estudio sobre la alfabetización política y las actitudes públicas hacia la innovación gubernamental – el Gobierno 3.0 en Corea del Sur [A study on policy literacy and public attitudes toward government innovation—Focusing on Government 3.0 in South Korea]. *Journal of Open Innovation: Technology, Market, and Complexity*, *1*(1), Art. 23. https://doi.org/10.1186/s40852-015-0027-3

Perry, E. A., Thomas, H., Samra, H. R., Edmonstone, S., Davidson, L., Faulkner, A., Petermann, L., Manafo, E., & Kirkpatrick, S. I. (2017). Identificar los atributos de la alfabetización alimentaria: Una revisión del contenido [Identifying attributes of food literacy: A scoping review]. *Public Health Nutrition*, *20*(13),2406–2415. https://doi.org/10.1017/s1368980017001276

Pinstrup-Andersen, P., & Watson, D. D. (2011). *Política alimentaria para los países en desarrollo: El papel del gobierno en los sistemas alimentarios mundiales, nacionales y locales* [*Food policy for developing countries: The role of government in global, national, and local food systems*]. Cornell University Press. https://doi.org/10.7591/9780801463433

Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2016). Recomendaciones para crear mejores definiciones de conceptos en las ciencias organizativas, sociales y del comportamiento [Recommendations for creating better concept definitions in the organizational, behavioral, and social sciences]. *Organizational Research Methods*, *19*(2), 159–203.https://doi.org/10.1177/1094428115624965

Raja, S., Clark, J. K., Freedgood, J., & Hodgson, K. (2018). Reflexivo e integrador: Reimaginar la participación de los gobiernos locales en los sistemas alimentarios [Reflexive and inclusive: Reimagining local government engagement in food systems]. *Journal of Agriculture, Food Systems, and Community Development*, *8*(Suppl. 2), 1–10. https://doi.org/10.5304/jafscd.2018.08B.013

Raja, S., Picard, D., Baek, S., & Delgado, C. (2014). Radicalismo en el cinturón del óxido: Una década de planificación de sistemas alimentarios en Buffalo, Nueva York (EE.UU.) [Rustbelt radicalism: A decade of food systems planning in Buffalo, New York (USA)]. *Journal of Agriculture, Food Systems, and Community Development*, *4*(4), 173–189. https://doi.org/10.5304/jafscd.2014.044.015

Raja, S., Sweeney, E., Mui, Y., & Frimpong Boamah, E. (2021). *Planificación de los gobiernos locales para los sistemas alimentarios comunitarios–Oportunidad, innovación y equidad en los países de ingresos bajos y medios* [*Local government planning for community food systems—Opportunity, innovation and equity in low- and middle-income countries*]. Food and Agricultural Organization of the United Nations (FAO). https://doi.org/10.4060/cb3136en

Razavi, A. C., Dyer, A., Jones, M., Sapin, A., Caraballo, G., Nace, H., Dotson, K., Razavi, M. A., & Harlan, T. S. (2020). Cumplimiento de las recomendaciones dietéticas sobre el sodio y prevención de la enfermedad cardiovascular aterosclerótica mediante la educación en medicina culinarian [Achieving dietary sodium recommendations and atherosclerotic cardiovascular disease prevention through culinary medicine education]. *Nutrients*, *12*(12), Art. 3632. https://doi.org/10.3390/nu12123632

Rivera-Ferre, M. G., Gallar, D., Calle-Collado, Á., & Pimentel, V. (2021). Educación agroecológica para la soberanía alimentaria: Perspectivas de los ámbitos formal y no formal en Brasil y España [Agroecological education for food sovereignty: Insights from formal and non-formal spheres in Brazil and Spain]. *Journal of Rural Studies*, *88*, 138–148. https://doi.org/10.1016/j.jrurstud.2021.10.003

Robert, N., & Mullinix, K. (2018). La política municipal al servicio de los sistemas alimentarios regionales en Columbia Británica (Canadá): Evaluación de áreas focales y lagunas [Municipal policy enabling regional food systems in British Columbia, Canada: Assessing focal areas and gaps]. *Journal of Agriculture, Food Systems, and Community Development*, *8*(Suppl. 2), 115–132. https://doi.org/10.5304/jafscd.2018.08B.003

Roberts, W. (2014). *Alimentos para construir ciudades: Guía de campo para planificadores, activistas y empresarios* [*Food for city building: A field guide for planners, actionists & entrepreneurs*]. Hypenotic.

Rosas, R., Pimenta, F., Leal, I., & Schwarzer, R. (2021). FOODLIT-PRO: Desarrollo conceptual y empírico de la Rueda de Alfabetización Alimentaria [FOODLIT-PRO: Conceptual and empirical development of the Food Literacy Wheel]. *International Journal of Food Sciences and Nutrition*, *72*(1), 99–111. https://doi.org/10.1080/09637486.2020.1762547

Rosch, E., & Mervis, C. B. (1975). Semejanzas familiares: Estudios sobre la estructura interna de las categorías [Family resemblances: Studies in the internal structure of categories]. *Cognitive Psychology*, *7*(4), 573–605. https://doi.org/10.1016/0010-0285(75)90024-9

Rose, N., & Lourival, I. (2019). Hegemonía, contrahegemonía y alfabetización en sistemas alimentarios: Transformar el sistema alimentario industrial global [Hegemony, counter-hegemony and food systems literacy: Transforming the global industrial food system]. *Australian Journal of Environmental Education*, *35*(2), 110–122. https://doi.org/doi:10.1017/aee.2019.9

Rowat, A. C., Soh, M., Malan, H., Jensen, L., Schmidt, L., & Slusser, W. (2021). Promover un marco interdisciplinario de alfabetización alimentaria para cultivar una ciudadanía crítica [Promoting an interdisciplinary food literacy framework to cultivate critical citizenship]. *Journal of American College Health*, *69*(4), 459–462. https://doi.org/10.1080/07448481.2019.1679149

Schiff, R. (2008). El papel de los consejos de política alimentaria en el desarrollo de sistemas alimentarios sostenibles [The role of food policy councils in developing sustainable food systems]. *Journal of Hunger &Environmental Nutrition*, *3*(2–3), 206–228. https://doi.org/10.1080/19320240802244017

Sibbing, L. V., & Candel, J. J. L. (2021). Realización de la política alimentaria urbana: Un análisis institucionalista discursivo del municipio de Ede [Realizing urban food policy: A discursive institutionalist analysis of Ede municipality]. *Food Security*, *13*(3), 571–582. https://doi.org/10.1007/s12571-020-01126-8

Siddiki, S. N., Carboni, J. L., Koski, C., & Sadiq, A.-A. (2015). Cómo las normas políticas configuran la estructura y el funcionamiento de los acuerdos de gobernanza colaborativa [How policy rules shape the structure and performance of collaborative governance arrangements]. *Public Administration Review*, *75*(4), 536–547. https://doi.org/10.1111/puar.12352

Singer, P., & Mason, J. (2006). *Cómo comemos: Por qué importan nuestras elecciones alimentarias* [*The way we eat: Why our food choices matter*]. Rodale.

Slimani, M., Lange, J.-M., & Håkansson, M. (2021). La dimensión política en los currículos de educación ambiental: Hacia un marco conceptual y analítico integrador [The political dimension in environmental education curricula: Towards an integrative conceptual and analytical framework]. *Environmental Education Research*, *27*(3), 354–365. https://doi.org/10.1080/13504622.2021.1879023

Smith, K. L., Shade, L. R., & Shepherd, T. (2017). Insignias abiertas de privacidad para la alfabetización en política digital [Open privacy badges for digital policy literacy]. *International Journal of Communication*, *11*, 2784–2805. https://ijoc.org/index.php/ijoc/article/view/6174

Stehr, N., & Adolf, M. T. (2018). [Conocimiento/Poder/Resistencia [Knowledge/Power/Resistance]. *Society*, *55*(2), 193–198. https://doi.org/10.1007/s12115-018-0232-3

Stinson, E. (1998). *Comerse el mundo: La alfabetización alimentaria y su lugar en las aulas de secundaria*] [Tesis de maestría, University of Victoria [*Eating the world: Food literacy and its place in secondary school classrooms* [Master's thesis, University of Victoria]]. https://dspace.library.uvic.ca/handle/1828/2841

Sumner, J. (2015). Leer el mundo: La alfabetización alimentaria y el potencial de transformación del sistema alimentario [Reading the world: Food literacy and the potential for food system transformation]. *Studies in the Education of Adults*, *47*(2), 128–141. https://doi.org/10.1080/02660830.2015.11661680

Szabady, G. L. (2014). La cornucopia de la significación: Más allá de la identidad alimentaria, hacia la democracia alimentaria [The cornucopia of signification: Moving beyond food identity toward food democracy]. *Food, Culture & Society*, *17*(4), 629–639. https://doi.org/10.2752/175174414X14006746101556

Takeda, Y. (2022). Praxis de la alfabetización crítica: Utilización pragmática de las tensiones teóricas [Praxis of critical literacy: Pragmatic utilization of theoretical tensions]. *Critical Education*, *13*(2), 36–50. https://doi.org/10.14288/ce.v13i1.186594

Thompson, C., Adams, J., & Vidgen, H. A. (2021). ¿Estamos más cerca de un consenso internacional sobre el término "alfabetización alimentaria"? Una revisión sistemática de su uso en la literatura académica (1998-2019) [Are we closer to international consensus on the term 'food literacy'? A systematic scoping review of its use in the academic literature (1998–2019)]. *Nutrients*, *13*(6), Art. 2006.https://doi.org/10.3390/nu13062006

Trubek, A. B., Carabello, M., Morgan, C., & Lahne, J. (2017). Capacitados para cocinar: el papel crucial de la "agencia alimentaria" en la elaboración de las comidas [Empowered to cook: The crucial role of 'food agency' in making meals]. *Appetite*, *116*, 297–305. https://doi.org/10.1016/j.appet.2017.05.017

Truman, E., Lane, D., & Elliott, C. (2017). Definiendo la alfabetización alimentaria: Una revisión del contenido [Defining food literacy: A scoping review]. *Appetite*, *116*, 365–371. https://doi.org/10.1016/j.appet.2017.05.007

Vaitkeviciute, R., Ball, L. E., & Harris, N. (2015). La relación entre la alfabetización alimentaria y la ingesta dietética en adolescentes: Una revisión sistemática [The relationship between food literacy and dietary intake in adolescents: A systematic review]. *Public Health Nutrition*, *18*(4), 649–658. https://doi.org/10.1017/s1368980014000962

Velardo, S. (2015). Los matices de la alfabetización sanitaria, la alfabetización nutricional y la alfabetización alimentaria [The nuances of health literacy, nutrition literacy, and food literacy]. *Journal of Nutrition Education and Behavior*, *47*(4), 385–389, Article E1. https://doi.org/10.1016/j.jneb.2015.04.328

Vidgen, H. A., & Gallegos, D. (2014). Definición de la alfabetización alimentaria y sus componentes [Defining food literacy and its components]. *Appetite*, *76*, 50–59. https://doi.org/10.1016/j.appet.2014.01.010

Wekerle, G. R. (2004). Movimientos por la justicia alimentaria: Política, planificación y redes [Food justice movements: Policy, planning, and networks]. *Journal of Planning Education and Research*, *23*(4), 378–386. https://doi.org/10.1177/0739456x04264886

Wittman, H., Dennis, J., & Pritchard, H. (2017). ¿Más allá del mercado? Nuevo agrarismo y acceso cooperativo a las tierras agrícolas en Norteamérica [Beyond the market? New agrarianism and cooperative farmland access in North America]. *Journal of Rural Studies*, *53*, 303–316. https://doi.org/10.1016/j.jrurstud.2017.03.007

Yamashita, L., & Robinson, D. (2016). Hacer visibles a las personas que nos alimentan: Educar para una alfabetización alimentaria crítica a través de textos multiculturales [Making visible the people who feed us: Educating for critical food literacy through multicultural texts]. *Journal of Agriculture, Food Systems, and Community Development*, *6*(2), 269–281. https://doi.org/10.5304/jafscd.2016.062.011