TRANSDISCIPLINARY EXPERIENCE ENGAGES STUDENTS IN WICKED PROBLEM OF FOOD JUSTICE

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Abstract

With roots in social and environmental justice, the food justice movement seeks to ensure that all people, regardless of race, gender, or socioeconomic status, have access to safe, nutritious, and culturally appropriate food. Achieving food justice represents one of the world's most complex challenges and persistent wicked problems, yet opportunities to learn about the topic and its many associated issues are relatively uncommon in agricultural curricula in higher education today. A collaborative of honors and agricultural educators at 14 institutions developed a year-long sequence of immersive, transformational academic and experiential learning opportunities aimed at educating and empowering students around the "What? Why? How?" of food justice. Program components included a transdisciplinary online colloquium featuring local and national content professionals examining a wide range of food justice perspectives and case studies. Grounded in systems thinking, the colloquium also included professional development activities, leadership capacity building, ethical considerations, and historical reflection and analysis. After the colloquium, program participants completed signature food justice experiences, including virtual hackathons, local design challenges, and a field course, and then capped the experience with a culminating virtual conference. This article describes the year-long program's important components, learning outcomes, lessons learned, and implications for collegiate agricultural educators.

Keywords: food justice, wicked problems, transdisciplinary, experiential learning, systems thinking, community engagement

Food justice is a broad and evolving global social movement that aims to address systemic injustices in the food system (Murray et al., 2023). Within the United States (U.S.), the historical legacies of settler-colonialism and chattel slavery, which stripped land rights from Indigenous peoples and forced enslaved people to work stolen land to produce food, respectively, shaped the modern food system around these injustices (Holt-Giménez & Harper, 2016). Food justice grapples with and aims to address these injustices and ongoing racism, sexism, and classism, wherein marginalized groups bear the largest brunt of work in the food system while reaping the fewest benefits through practices such sharecropping and labor abuse (Billings & Cabbil, 2011; Rosenburg & Dutkiewicz, 2021; Sachs & Patel-Campillo, 2014). Moreover, injustices in the U.S. food system are enabled by the neoliberal project, wherein maximizing profits for large multinational food corporations often takes priority over human health, food security, or environmental sustainability (Otero et al., 2015; Mares & Alkon, 2011). The result is system where historically racialized and marginalized communities face the highest rates of food insecurity (Rabbit et al., 2023), reliance on government food assistance programs and emergency food (Marriott et al., 2022; Samuel et al., 2023), and diet-related chronic disease (Brothers et al., 2019; Gaskin et al., 2014; Hutchinson & Shin, 2014), while also being overrepresented in the food system's working class and severely underrepresented among the land-owning and/or food business-owning classes (Billings & Cabbil, 2011).

Concepts of social equity, food security, food systems transformation, community participation and agency, and environmental sustainability are common across varying definitions of food justice (Murray et al., 2023). Food justice initiatives in the U.S. have aimed to create alternative food movements that reorient food production, distribution, and consumption using an equity lens, typically via community organizing and other grassroots efforts (Giménez &Yang, 2011; Hayes & Carbone, 2015). Because food justice is a fundamental human right, equitable approaches are necessary to address the high rates of food insecurity as well as land and labor inequities across the U.S., especially in underrepresented and historically marginalized communities (Hales & Coleman-Jensen, 2024). Food justice requires prioritizing and enabling voices from these communities in all aspects of decision-making, action, and policy solutions to address the challenges (Alkon & Agyeman, 2011; Clendenning et al., 2016). The importance of food justice to both human and planetary health has led to its inclusion in the grand challenges of many international agencies (HLPE, 2020).

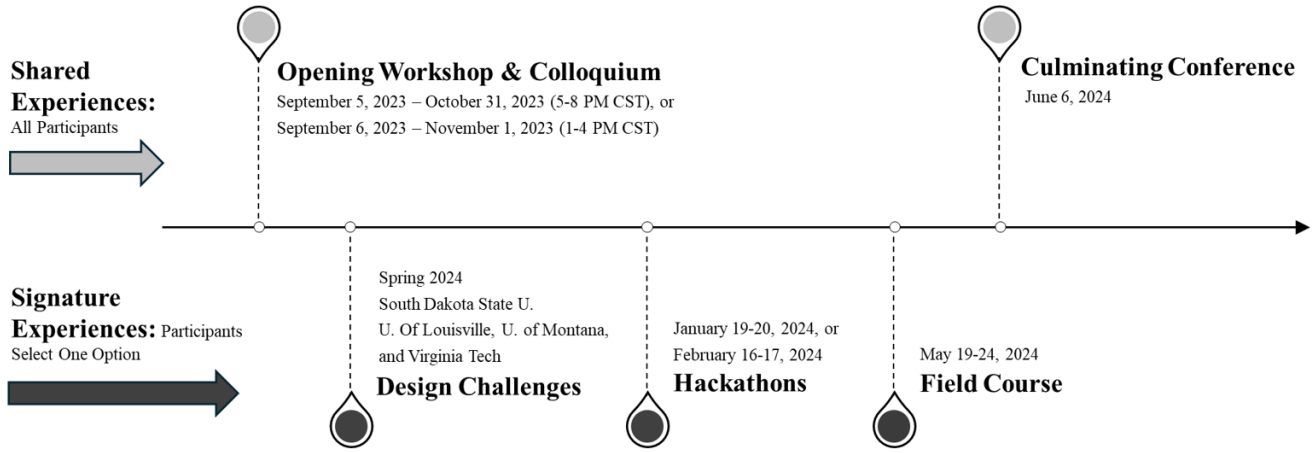
Despite the scope of this issue, work remains in developing and sharing food justice curricula innovations in U.S. colleges of agriculture and related domains. While one article was found that discussed food systems and sustainable agriculture education and included mention of the "complex and controversial issues of equity, justice and quality" (Jordan, N. et al., 2014 p. 303), a keyword search of the NACTA archives (August 4, 2025) yielded no results for "food justice." Our goal in this educational endeavor was to design a one-year program for honors and other high-achieving undergraduates to develop their ability to critically examine food, agriculture, natural resources, and human sciences (FANH) topics involved in food justice (Kotinek et al., 2023), and, by doing so, to equip them more broadly to engage other wicked problems. Students from 21 universities formed the inaugural "Justice Challenge" cohort on *Food Justice* during 2023-2024; they participated in a transdisciplinary colloquium and a signature experiential learning activity (i.e., hackathon, design challenge or field course) during the academic year as well as a culminating conference in late spring, 2024 (Figure 1).

This article presents a case study highlighting the program's distinct approaches, key activities, preliminary outcomes, and implications for college teachers of agriculture. Our viewpoint is, first, that food justice is an important societal issue that is ripe for study and curriculum/program development. Although food justice itself is worthy of in-depth examination, this work can further serve as an exemplar of an educational approach to other wicked problems – issues that today's college graduates need exposure to, experience in, and engagement with if they are to become the difference makers that society needs. Second, we detail a model approach for a robust, year-long, multi-pronged program aimed at educating, engaging, and empowering participants around food justice issues. Our work is further distinctive because of its unique, multi-disciplinary, multi-institutional, distance-delivered methodologies, and because of the partnership represented between honors faculty/students/administrators and faculty/administrators in FANH disciplines. The breadth and complexity of this program means that it includes many elements that may be of interest to or adapted (in sum or in parts) by NACTA readers. For example, educators may wish to develop a food justice course of their own, or a course aimed at another wicked problem; they might wish to incorporate systems thinking, Reacting to the Past, or professional development content into other courses; they might experiment with the hackathon or field course formats, with distance delivery or with new multi-institutional partnerships. As educators and program leaders, we have learned a great deal and have many important takeaways from this work on food justice. We hope to share these insights with our colleagues through this publication.

The food justice experiences described herein comprise the first of three year-long stand-alone cohorts in a new program called The Justice Challenge which is funded by a USDA-NIFA Higher Education Challenge grant. The Justice Challenge engages honors professionals from 14 universities with leading scholars in the FANH sciences to prepare students to address some of the world's grand challenges (Bott-Knutson et al., 2023) and to participate in solving community problems (Appel et al., 2023). Seventy-seven students from 17 universities participated in the Year 1 cohort focused on Food Justice. In years two and three of the project, the new cohorts of students will engage with annual themes of Climate Justice and Sustainable Agriculture, respectively.

Figure 1

Timeline for Justice Challenge Food Justice Curriculum 2023-2024.



Methods

A team of honors professionals from 14 universities formed in 2020 with a goal of innovating the future of higher education through innovative and justice-oriented pedagogies. Given that two members of the team had previous experience leading campus-wide initiatives grand challenges as defined by USDA (Bott-Knutson et al., 2019; Nichols et al., 2019), the larger team agreed to build upon that momentum by developing a national initiative, The Justice Challenge, focused on addressing the challenges with a justice lens (Kotinek et al., 2023). The team faced various challenges while imagining such a program and subsequently bringing it to life. Namely, highly collaborative transdisciplinary work is challenging and time consuming. Yet it is also rewarding. The challenges and benefits associated with program conception are outlined in (Bott-Knutson et al., 2025). Ultimately, The Justice Challenge was designed around an annual theme, the first of which was food justice.

The food justice curriculum was designed for undergraduate students of all majors. To complement any preexisting knowledge of food justice that students may have from academic work or lived experience, the focus throughout the year-long program was to explore a non-comprehensive collection of food justice concepts scaffolded on three central questions: What is food justice?, Why do we need food justice?, and How do we do/approach food justice?

This "What? Why? How?" approach, which was introduced in the colloquium (Table 1), had several advantages. First, it provided an opportunity for students—some of whom had little formal education in FANH subjects while others had narrow disciplinary training — to become conversant in food justice as a wicked problem. Second, the "What? Why? How?" framework streamlined the assessment and evaluation rubric for use by participating faculty with varying levels of food justice content knowledge and experience. Third, it provided a scaffolding for the student signature learning experiences (Table 2). Fourth, the approach provided a replicable model for Justice Challenge year two (Climate Justice) and year three (Sustainable Agriculture) themes. Based on their learning, students were asked to iteratively articulate their conceptualizations of food justice through these three central questions.

The program and associated activities were submitted for IRB approval and determined to meet exemption criteria 45 CFR 46.104(d)(1) and/or 45 CFR 46.104(d)(3)(i), depending on the activity. Our approvals are on file with the REDACTED A Institutional Review Board: Colloquium- IRB-2308003-EXM, Hackathon- IRB-2210006-EXM, Design Challenge- IRB-2311011-EXM, Field Course- IRB-2024-67.

Results

Colloquium

The food justice curriculum began with a transdisciplinary colloquium, a nine-week, synchronous online experience delivered by Zoom. The colloquium offered students a foundation for defining food justice and for exploring the positionalities, ethics, and civic responsibilities required to enact positive change in this arena. This grounding experience started with the first week dedicated to orienting participants to The Justice Challenge program expectations, the concepts of food justice, and strategies for engaging successfully in efforts to make social change. Goals of the colloquium included: 1) exposing participants to the complexity of wicked problems, 2) developing an understanding of the "What? Why? How?" of food justice, 3) discovering how to work in teams spread across multiple institutions, 4) implementing Reacting to the Past (RTTP) gameplay, and 5) gaining an understanding of personal strengths and how to use them in collaborative settings.

Table 1

Colloquium at a Glance.

Colloquium Structure	• 3-hour weekly online synchronous meetings for 9 weeks. • Meetings divided into content and professional development halves.
Food Justice Content	• Foundation for defining core food justice concepts and definitions facilitated by FANH faculty partners. • Case study-based examination of food justice focused on the complexity of the problem and prioritizing community voices.
Professional Development	• Teamwork, collaborative strategies, assessment of personal strengths in collaborative strategies. • Reflection on role of positionability (or the role of various aspects of identity including race, gender, class, ethnicity, and geographical location) in comprehending wicked problems. • Primer on how to engage in systems thinking.
Pedagogies Featured	• Strengths and identity exploration based in leadership studies literature. • Reacting to the Past (RTTP), which involves roleplay debates in a historical context.
Assessments	• Three iterative reflections on "What? Why? How?" • Positionability as a Leader Reflection. • CliftonStrengths and Leadership Reflection. • RTTP Speech Outline (Week 4 or 6, depending on role). • Leadership for Food Justice Reflection.

Table 2

Signature Experiences at a Glance.

	Hackathon	Design Challenge	Field Course
Description	Team collaboration to address specific food justice issue in specific community.	Course designing strategies to address a community-based problem in a local settng.	Immersive place-based experience following the Place as Text model of exploration
Structure	31 hours, online, from Friday through Saturday with students from across institutions.	Semester-long in-person local experience where students from a single institution participate.	Week-long field course attended by 15 students from various universities.
Location	2 online hackathons tackling food insecurity in two focal communities (Toledo, OH and New Brunswick, NJ).	Independent experiences at South Dakota State U., U. of Louisville, Virginia Tech, and U. of Montana.	Oklahoma State U., May 2024.
Schedule	• 2-hour long introduction reinforcing food justice knowledge, team building, and systems thinking skills. • 24-hour period in which participants researched problem and proposed solution(s). • Consultation opportunities with facilitators included. • Experience wrapped up with team presentations and awards ceremony.	• Listening and learning, built on best practices in community-based participatory research. • Building conceptual framework for community engagement. • Intensive community engagement to grow knowledge and gain perspectives. • Present refined proposed plan via pitch book.	• Introduction to Place as Text model of exploration. • 4 days of exploration, meeting with various communities, learning about historical contexts of food justice issues. • Focus on experiencing wide range of circumstances (rural vs. urban, Indigenous and African American).

Each three-hour weekly session was organized into halves: the first focused on food justice content and the second on relevant professional development. Food justice content facilitators engaged participants in both verbal- and (Zoom) chat-derived discussions defining food justice. Professional development facilitators then guided participants in setting ground rules and goals for engaging the class community. Participants were challenged to examine their positionality related to the many complexities of food justice, including themes such as socioeconomic status, age, race, gender, language, culture, and geography.

The initial phase of the colloquium was dedicated to exploring concepts that frame food justice. Participants developed their lens for food justice while examining how closely their own mental models of the topic reflected reality. The development of interpersonal skills and critical thinking tools was supported by exercising critical conversations and analysis of information credibility. We further explored ethical considerations warranted when working in the food justice arena.

Weeks three through six of the colloquium featured food justice-related case studies which explored how communities throughout the U.S. experienced food justice or injustices and what these communities had done and were doing to address their respective situations. These sessions were facilitated by FANH faculty partners who worked directly with these case studies and included populations ranging from urban teens in New Jersey to African American farmers in Virginia, university students in Wyoming, and tribal communities in South Dakota. As participants gained real-world insight into the work of food justice, they put their newfound content and professional skills to the test in the context of Reacting to the Past (RTTP) gameplay in weeks seven and eight. RTTP, developed by Mark C. Carnes (Carnes, 2014), is a teaching method in which students take on specific roles (i.e., characters) and goals in a specific historical context. In RTTP, each student pursues their goals by collaborating or competing with other players via gameplay. Although students are provided context and role specifics, the game's outcome is not predetermined and may not align with historical specifics (RTTP, 2023). We used the game "Food or Famine, 2002: The Debate over Genetically Modified Crops in Southern Africa" in which players are confronted with a famine that extends across several nations in southern Africa; the central issue of the game is whether the leaders of those nations will accept or decline a U.S. offer of genetically modified (GM) corn (Henderson, 2022). Acceptance of GM corn from the U.S. would provide immediate food relief and likely prevent cases of starvation, but it would also likely lead to agricultural export restrictions from the European Union (EU), with its ban on GM products, thus limiting future economic revenue and sustainability. Students playing the game explored the positions of the impacted African countries, the EU and U.S., corporate influences, and public debates on GM foods and safety (Henderson, 2022). This experience was well received by colloquium participants; students rated the RTTP assignment that asked them to prepare a persuasive speech for the game as one of the most impactful components of the course.

The ninth and final week of colloquium yielded the richest dialogue. Project partners and participants reflected on the experience and their heightened awareness of issues pertaining to food justice. In preparation for entering the next phase of the program, participants envisioned their plans to personally impact food justice issues.

Indicators of participant engagement were generally positive. Most students kept their cameras on during colloquium sessions. While a smaller group of 10 to 15 students offered most of the verbal contributions, nearly every student actively participated in chat discussions and calls for "waterfall" responses in the chat. Every project partner who led a section of content and/or professional development did so with the resolve to foster interaction with and among participants – outcomes which were witnessed throughout the program. Those project partners who were not leading a topic contributed to interactions behind the scenes, asking and responding to questions in the chat and edifying participation with comments or via the reactions feature on Zoom.

This growth and depth of engagement among food justice colloquium students was also evident in course assessments. Students responded to the questions of "What is Food Justice?", "Why do we need Food Justice?" and "How do we do/approach Food Justice?" three times throughout the colloquium. Initial qualitative analysis indicated student responses deepened in both breadth and complexity over the course of the semester, reflecting increasingly informed, nuanced, sophisticated, and empowered perspectives on the themes.

Upon completion of the colloquium, participants put their newfound perspectives and skills into action through participation in one of three signature experiences: a hackathon (REDACTED 4, 2023), design challenge, or field course. At the end of the program, participants convened for a culminating conference where they shared artifacts representative of their signature experiences.

Signature Experiences

Hackathons

During hackathons, teams engage in developing innovative solutions to a challenge or problem in a time-intensive period. In the food justice hackathons, the goal was team collaboration to address food justice in a specified community (Hart et al., 2023). During Spring 2024, students selected one of two options for two-day hackathon participation. Each hackathon was held online for 31 hours from mid-day Friday to Saturday evening. In each hackathon, a two-hour opening segment focused on introducing the approach, the coordinators, and the participants as well as team assignments, ground rules, and deciding on team names. Attention was devoted to deepening food justice knowledge, team building, and systems thinking skills. Then, for a 24-hour period, teams worked on researching and proposing ideas to lessen food insecurity in a focal community—Toledo, Ohio or New Brunswick, New Jersey. During the last portion of the hackathons, teams presented their proposals to a panel of judges, reflected on the process, and received feedback and awards.

Decisions about proposed solutions varied by team, but each contextualized current concerns within the focal community. For example, a Toledo team included statistics such as the community's rates of food insecurity, child food insecurity, poverty, and households without access to a car. Then, this team described plans for additional community gardens supported by evidence that influenced its rationale. Factors included that gardeners eat more vegetables and fruits, and community gardens have been shown to decrease food insecurity (Alaimo et al., 2008; Carney et al., 2012; Litt et al., 2011). One of the New Brunswick teams employed similar community statistics (e.g., poverty rate, comparative cost of living) but also traced changes across time and drew upon findings from a recent community survey. This team proposed a multi-faceted approach centered on increased urban agriculture, partnerships with local clubs, and expansive nutrition education.

Design Challenges

This signature experience used systems and design thinking approaches to encourage creativity, critical thinking, collaboration, and iteration in designing strategies, approaches, and/or actions to address a wicked, community-based problem related to food justice. Following the virtual, nationwide transdisciplinary colloquium, the design challenges were in-person opportunities for students to identify, propose, and potentially implement approaches to a local food justice issue. Design challenges were offered at four participating universities: South Dakota State University, University of Louisville, Virginia Tech, and University of Montana. Though leaders at each host school infused their own flavor into the course, the experiences were built upon common objectives: 1) exploring a real-world food justice approach to a FANH issue in the local community, 2) engaging with community mentors, partners, and/or members, and 3) designing, with and for partners, approaches to support or address that issue.

Although the student experiences with the design challenges varied based upon nuanced approaches at each partner institution, all included pre- and post-reflections; introduction and application of design thinking, systems thinking, and project management; introduction and application of best practices in community-based participatory research; development of projects meeting a community need; and presentations of their projects to Justice Challenge facilitators and community partners. Most involved classroom visits by leaders of local efforts addressing food justice issues and field trips to their operations. They differed in duration--most were one semester courses though one was a two-semester course. They also differed in how food justice issues and community partners were identified, with some focusing explicitly on-campus and others off-campus, and how foci were determined (e.g., suggested by community partners or the Mayor's Office). This high degree of program flexibility was a strength, providing students with experiences that met common learning goals and yet were tailored to opportunities available at each campus. Further, the varied approaches demonstrated how the design challenge framework could be successfully implemented in different campus and community contexts.

Design challenge hosts from South Dakota State University and the University of Louisville collaborated to create and share the same food justice and professional development content at their respective sites. The first phase was dedicated to Listening and Learning. Participants built upon their foundational knowledge of food justice content, systems thinking, and professional development while being introduced to best practices in community-based participatory research. The second phase shifted focus to Partnering and Planning. Participants built a conceptual framework for community engagement, began training in collaborative writing and program evaluation, and explored anti-oppressive discussion facilitation. In this phase, they defined the scope of their mission and prepared a project management plan. Phase three, Community and Commitment, transitioned to a period of intensive community visits and empowered student leadership. Teams began building upon their network of community partners, seeking additional partners and insights to develop a more comprehensive understanding of food justice challenges. Students collaborated to triangulate information and developed an infographic representative of the community's greatest expressed needs related to food. In the fourth and final phase, Polish and Present, students engaged in the iterative processes of brainstorming and refining their proposed plan. At the end of the month, the team delivered a pitch book and presentation to The Justice Challenge facilitators and members of the focal community.

South Dakota State University. The design challenge at SDSU was collaboratively facilitated by an Assistant Professor and Nutrition Extension Specialist, the Dean of the Van D. and Barbara B. Fishback Honors College, both of whom have extensive experience in serving underrepresented populations, and the Honors Graduate Teaching Assistant pursuing a degree in Counseling & Student Affairs. The participants were three honors students in their second, third, and fourth year of college, respectively, and all intended to attend medical school upon graduation. The students' shared interest in health ultimately led them to respond to the expressed needs of the focal community regarding access to healthy foods among high school students. The facilitators organized the experience into monthly approaches to exploring the food justice theme. The group met weekly for four hours on Friday afternoons and often stayed beyond the end of the planned time continuing rich conversations. Participants were introduced to food justice leaders in their focal community of Sioux Falls, SD with whom they interacted regularly.

University of Louisville. The University of Louisville's design challenge included 10 Honors students with an array of backgrounds and majors. Most were juniors and seniors, and many planned to pursue careers in health professions or nonprofit/advocacy work. The course was facilitated by the Executive Director of the University Honors Program, who has considerable experience in sustainability, social determinants of health, and community partnerships. The group met as a whole twice a week, for 75 minutes, and divided into three teams, which also held team meetings and meetings with their community partners in the focal community of Louisville, KY. Representatives from several

community organizations (e.g., Change Today/ Change Tomorrow, The Food Literacy Project, The Hope Buss, Save the Children Action Network) shared information with the design challenge class members and served as continuing resources.

Virginia Tech. The design challenge at Virginia Tech engaged nine honors students. One member of The Justice Challenge colloquium content team who is also an honors college faculty member taught the course with instructional support from another content team member in the department of Agricultural, Leadership, and Community Education. Both instructors have experience in community-based participatory research and teaching related to food justice. In addition to food justice generally, the course focused on justice and equity approaches to student food security, building from a case spotlighted in the previous semester's colloquium. Course activities included peer-facilitated discussion; reflection around community-engaged learning, change-making, and food justice; field trips; and most centrally, the hands-on, team-based, semester-long project. The project-based approach supported students as professionals-in-training, partnering them with a professional mentor within the Virginia Tech campus-community to complete real-world food justice projects.

University of Montana. The design challenge at the University of Montana spanned two semesters and was delivered via the framework of the Davidson Honors College's QUEST (Questions for Undergraduates Exploring Social Topics) framework, with the focal community of Missoula, MT; 18 students participated. In previous semesters, teams of QUEST students had worked to conduct research and propose solutions to the Missoula Mayor's Office around complex issues such as affordable housing, zero waste, and systemic racism. During 2023-2024 University of Montana students partnered with the Missoula Food Bank and Community Center to explore how to make the food system in Missoula more just. Student teams visited and volunteered at the food bank, drew on local and national data, and interviewed key stakeholders, eventually developing pitch books and formal presentations to the food bank's executive leadership. Among the proposed approaches were projects that focused on infant hunger, food access at the University of Montana, a fresh food delivery program for low-income elementary students' families and enhancing the food bank's offerings with more culturally appropriate foods for immigrant and Native American community members.

Field Course

The final signature experience was a week-long field course hosted by Oklahoma State University in May 2024. Fifteen students representing 12 institutions participated in an immersive place-based experience in: 1) food production, 2) food justice in an urban environment, and 3) food justice in rural and Indigenous peoples' environments. The underlying pedagogical approach was the National Collegiate Honors Council's *Place as Text*™ model of exploration (Braid & Long, 2010) which was introduced on the first full day. Day Two was spent visiting food production projects at the Ferguson College of Agriculture, Oklahoma State University. Day Three was spent in the city of Tulsa and included a meeting with physicians combating childhood obesity and a visit to "Greenwood Rising" (https://www.greenwoodrising.org/), an interactive experience which takes visitors through the history of the Greenwood district of Tulsa, once known as Black Wall Street, through the Tulsa Race Massacre of 1921 and post-massacre development. Students also visited the Food Bank of Eastern Oklahoma, which provides nutritional support to urban and rural parts of Oklahoma. On Day Four, students visited the Chickasaw Cultural Center (https://www.chickasawculturalcenter.com/) in Sulphur, OK, where they learned about current projects and the historical experience of the displaced sovereign Indigenous nations along the Trail of Tears. During lunch, students saw the produce they had harvested earlier in the week available for the shoppers. The rest of the day was spent preparing their projects and presentations, which were delivered on the program's final morning. Based on the content of these projects, the experiences that had the biggest impact on the participants were the student farm and the issues surrounding rural and Indigenous peoples and food. In particular, participants were inspired by the community youth education project of the Chickasaw Nation.

Culminating Conference

Justice Challenge students, faculty, and staff reconvened via Zoom in early June to share and synthesize lessons learned over the year-long examination of food justice. The culminating conference featured a recorded address by Allison Alkon and Julian Ageyman, authors of *Cultivating Food Justice: Race, Class and Sustainability* (2011), which reinforced the "what-why-how" approach to food justice and provided encouragement for students to continue working on this wicked problem. The conference also included presentations by participants in each of the distinct signature experiences (i.e., hackathons, design challenges, and field course) who proudly and enthusiastically shared their work, thus contributing to a broader, collective sense of learning. Design challenge and hackathon presentation awards were shared with the whole group. Program facilitators and student participants offered summative reflections, evaluative input, and highlighted opportunities for students to continue their involvement with food justice projects and issues.

Outcomes

A comprehensive assessment for the Justice Challenge program was developed to collect and analyze data from colloquium and signature experiences each year, including self-reported progress toward stated learning outcomes as well as qualitative evaluation of course assessments and student reflections to assess students' growth throughout their Justice Challenge experience. With this three-year longitudinal assessment underway, this article does not include in-depth analysis of outcomes but rather presents representative student feedback highlighting outcomes achieved.

Reflections from students at the end of the colloquium and following their signature experiences, as well as the demonstrations of student learning and comments shared by participants in the culminating conference, highlight how the goals for this experience are likely to have been met. Almost all student reflections referenced an expanded understanding of the complex issues that undergird food justice. In both written reflection and conference presentations, students connected their strengths with opportunities to effect change by working together and applying what they learned in their Justice Challenge experiences. As discussed above, qualitative thematic review of student writing across the various components of The Justice Challenge reflected an increase in depth, sophistication, and nuance of students' understandings of the "What? Why? How?" of food justice.

Students' written work and evaluation comments also reflected themes of empowerment. Indeed, equipped with their new knowledge and understanding of the issue and their own capacities for leadership, students' motivation to make a difference on food justice issues was evident. The following quotations exemplify this kind of empowerment:

"I'm looking to work with my local food pantry to expand their efforts to a dignity-based approach based on what I saw at the two pantries we visited [during the signature experience] and to source more of their produce from local and university farms to help people know where their food is coming from."

"My leadership for food justice plan is to actively promote food justice in my local campus community by accumulating unused Bear Bucks [food plan] every semester and donating them to the food bank. ... establishing this give-back system is part of a more extensive collaboration involving campus, facilities, and community outreach. Understanding these intersections within the system is crucial."

"I am gearing up for law school where I plan to specialize in environmental law, focusing on climate change. I want to use legal tools to advocate for policies that help people get fair access to food…and to support resilience and equity."

"I will continue volunteering at the food bank and work in my future school district to guarantee every child has access to nutritious food."

"My goal is to collaborate on a local food justice initiative by donating to and volunteering with local food banks and kitchens to work toward food sovereignty. During the last month of the food justice course, our class visited the Missoula Food Bank and Community Center and the 'Bear Necessities' food bank on campus, which are part of the Montana Food Bank Network. I was taken aback by how many people this organization provides food for across the state of Montana. It is heartbreaking to know how many households do not have access to sufficient, nutritious food, but it is incredible how many people the Missoula and UM food banks are able to help."

"As we learned through this course, the food justice problem is vast and multidimensional. I often find myself feeling overwhelmed and helpless when confronted by the complexity of the issue. Visiting and volunteering at the Missoula Food Bank and Community Center was a fantastic reminder that there are many readily accessible ways to help combat local food insecurity. I may not currently be in a position to tackle the food justice problem on a systemic level, but I am certainly in a position to help get food from the Missoula food bank onto the plates of those who need it. I plan on volunteering at the food bank for the remainder of my time living in Missoula."

"Because of my involvement in this course, I was invited to serve on the board of the Montana Food Bank Network. I was also inspired to work with my peers on the Dean's Student Advisory Council to establish and stock a food pantry in the honors college."

In each of these cases, and in dozens of others, students made it clear that their participation in The Justice Challenge was a valuable experience that helped them build concrete skills that will enable, motivate, and empower them to effectively advocate for food justice in their own communities and beyond.

Discussion

This work in developing and delivering a series of opportunities to learn about and engage with the issue of food justice provides a model that could be adapted by others interested in equipping students with the knowledge and skills necessary to address some of the wicked problems facing FANH disciplines today. As Jordan et al. argued (2014), preparing students to meet challenges such as food justice requires the intentional design of programs that will allow students "to practice new cognitive, affective, and practical abilities in a safe environment." (p. 309). A "What? Why? How?" approach to wicked problems can streamline curricula and mitigate the tendency for academics to overload course content. This approach can provide students with foundational grounding to become conversant and interested in the topic. We learned that when embracing value-driven challenges such as food justice, internal collaborative dynamics should model both the collaborative processes and the value-informed practices relevant to the content that facilitators hope to communicate to students through the curriculum. This approach requires striving for equity and flexibility in participation among team members and community partners.

Transdisciplinarity was inherent to this work in many ways. First, the team that developed and delivered the food justice experience comprised professionals with degrees ranging from Agriculture to Animal Science, Anthropology, Biology, Botany, Communication Studies, Nutrition, History, Political Science, and Sociology. The academic majors and career aspirations of student participants were equally diverse, spanning FANH disciplines in addition to Business, Education, Environmental Science, Pre-Medicine, Pre-Law, Psychology, Political Science, Sociology, and others. The focus of the year-long Justice Challenge program (i.e., food justice) was inherently transdisciplinary as well, intentionally integrating a justice lens into students' study of already complex food systems issues. Our approach highlighted the intersectional nature of food justice issues – and pushed students to examine historical, scientific, geopolitical, economic, environmental, and social justice factors to help them effectively address the "What? Why?

How?" of food justice. Instructional components coupled professional development activities (e.g., identity wheel exercises and strengths-based leadership assessments) with Reacting to the Past role-plays and training in the tools of systems thinking. Importantly, students were required to integrate these diverse disciplinary knowledge and skill sets into their colloquium projects and signature experiences.

The Boyer 2030 Commission Report is organized around the "'equity/excellence imperative,' a belief that excellence and equity are inextricably entwined, such that excellence without equity (privilege reproducing privilege) is not true excellence, and equity (mere access) without excellence is unfulfilled promise" (p. 3). Our approach purposefully recruited and included voices of academics, citizens, and students with wide-ranging backgrounds and perspectives. Our facilitation team modeled the importance of honoring multiple voices and perspectives and discussed ethical approaches and limitations of this work. From the project's beginning, we engaged students in considering the "what-why-how" of food justice, and each new experience was connected through lenses of equity and justice.

Our incorporation of diverse pedagogies provided space for facilitators and student participants to engage in new ways of learning. Instructors may not gravitate towards multi-modal formats in instructional delivery due to their familiarity or comfort with some techniques but not others, due to perceptions of the suitability of formats within different size groups, or even due to the sheer workload that they are balancing. Yet the potential benefits of multi-modal approaches are myriad. The varied approaches can be used strategically to layer theoretical framework with high-impact experiences. Further, multi-modal delivery speaks to a variety of learning strengths and overcomes the monotony of didactic or passive approaches. Our approach to exploring food justice demonstrates that multi-modal formats can be successful even in large, multi-institutional, predominantly online settings. When instructors form state, regional, national, or international networks, this collaboration can leverage the collective expertise of these networks through multi-modal delivery. For example, an instructor who wishes to incorporate a critical concept into their curriculum but does not have the personal experience, facilities, or resources to do so on their own, or when restricted to their own institution, can connect their students virtually with someone who can offer those skills. Similarly, instructors can augment what they cover in the classroom with lived experiences and expertise of their local communities when they take their students outside of the classroom. The positive impact of these diverse approaches was demonstrated repeatedly throughout the different elements of the project such as highlighting differences between rural and urban experiences and incorporating Native American and African American perspectives on food justice.

Cross-disciplinary and multi-institutional collaboration also presented value-added outcomes for students and faculty. The multi-institutional engagement exposed participants to contextual nuances embedded in diverse geographic regions. Justice Challenge discussions and project-based work engaged students in issues and approaches-- and with fellow students—who represented cultures and communities very different from their own (Hart et al., 2024). The benefits of these approaches extend beyond the individual growth of participants and facilitators. When participants from non-agricultural disciplines are engaged in FANH activities, we plant seeds for future consideration of agricultural topics and approaches. We cultivate a community of citizens that are better informed about food and agricultural issues and may be compelled to leverage their own skills as partners in developing new approaches for solving wicked problems such as food justice.

Summary

The pedagogy employed through The Justice Challenge provides a template for teaching students about the substance and complexity of wicked problems, while developing their equity lens and providing professional development tools that motivate and empower them to move beyond this experience and to continue to acquire expertise to act. The key tenets of the pedagogy are:

1. **"What? Why? How?"**. This approach focuses on the relationship between scientific or technical knowledge and the relevant socio-political contexts, invoking systems thinking principles of the interconnectedness of disciplines and perspectives.
2. **Student empowerment**. Building skills and competencies needed to understand and combat wicked problems (such as the need to develop partnerships and coalitions, utilizing empathy and epistemic modesty), while sampling from local and community-driven solutions, empowers students for future action. The "how" facet of "What? Why? How?" provides approaches to solutions to avoid the defeatism or paralysis that wicked problems can invoke by maintaining a focus on the actions needed for social change.
3. **Cross-institutional transdisciplinary partnerships**. Cross-institutional partnerships as modeled through The Justice Challenge have advantages in terms of both resources and perspectives. Pooling expertise and drawing on the perspectives of students and faculty from different kinds of institutions and across academic disciplines leads to showcasing complexity and allows students to have a tactile sense of how the wickedness of difficult problems comes to light differently depending on one's local and immediate experiences, and their disciplinary perspectives.

4. **Multimodal experiences** provide students opportunities to learn and apply learning in ways that are most appropriate to whether they are dealing with "What?" "Why?," or "How?." While some modes are not scalable (e.g., field courses), the adoption of hackathon pedagogies, and similar high impact practices, provides practice with "How?" while developing skills and competencies to untangle and approach problems in communities and online. The advantage of engaging a collaborative of faculty is to leverage everyone's strengths and draw from disciplinary expertise and active learning approaches that each educator brings to the experience.
5. **Access** is a hallmark of this pedagogical model in a number of meaningful ways. Students have access to experts and their peers in ways that are usually available only to those who have already invested time in the discipline, have managed to find faculty mentors, and are presenting at national conferences. Students from all disciplines, interested in a variety of career paths, are introduced to FANH, including those at institutions that lack FANH infrastructure. Faculty and administrators can access instructional resources and build experiences that might commonly be constrained by the limited scope of their own institutions.

This pedagogical approach deepens participants' understanding of systems thinking as a method for addressing wicked problems, such as food justice, and broadens their interpersonal and leadership skills. As participants grappled with the complexity of myriad interlocked issues contributing to food insecurity, they realized firsthand that community participation and transdisciplinary engagement were necessary to achieve traction for change—and the key role that each person can play in change initiatives.

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