

THE LUNCH CLUB:

Empowering students to express their visions for school cafeterias through design

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FOOD EQUITY AND ACCESS

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Abstract

Cafeteria spaces represent the largest access point to food in U.S. public schools. However, the current design of these spaces continues to exacerbate inequities and perpetuate unsustainable food systems. Improvement work in this area is mainly focused on healthy choices at an individual behavioral level and is targeted at elementary and middle school students. Currently, most changes in the cafeteria are undertaken without incorporating student voices or ideas in the process. This impedes the sustainable and equitable development of these spaces and removes opportunities for students to gain essential skills, attitudes, and knowledge as 21st century citizens. We propose a new design model to elevate and incorporate student voice in school decision-making processes. This model was applied with a cohort of U.S. high school students during a series of workshops and future-casting activities to co-create visions and goals for the future of cafeterias. Data and insights collected during this design research process were used to inform the design of an open, online Project-Based learning platform, allowing students to co-create and share their visions for the future of school cafeterias on an ongoing basis.

Keywords

Integrative Design, Food Systems, Equity and Access, Wicked Problems, School Cafeterias, Empowerment, Co-Creation, Food Curriculum, Systems Thinking, High School, Project-Based Learning

INTRODUCTION

Problem Setting

"I just thought of a great theory that explains everything. When I went to that party, I was abducted by aliens. They have created a fake Earth and fake high school to study me and my reactions. This certainly explains cafeteria food."

- Laurie Halse Anderson, Author of *Speak*

Cafeteria spaces represent the most significant point of access to food in U.S. public schools. This is particularly true for low income students who may receive over 50% of their daily caloric intake from school meals (Cullen 2017). These spaces are where K-12 students build many of their relationships with food and their peers, relationships that will influence them for the rest of their lives. This makes school cafeterias a critical part of the conversation about food and the future of our food systems.

However, school cafeterias are all too often uninspiring spaces comprised of blank cinder block walls and antiquated folding tables. Students sit banquet style, trying to cram in as much social time as possible between mouthfuls of home-packed food or processed lunches during their 20 to 30 minutes of freedom. The shortness of the lunch period and the number of students in the room create a noisy and chaotic environment, one that requires constant supervision from school staff. In the American public school system, this room is not a place of education, aesthetics, or even health, it is a space of necessity and efficiency. Students must eat during the school day, but what and how they eat is not part of their education; it is simply a requirement of being human.

High schoolers, in particular, are at a developmental milestone where they are building identities around food that are separate from that of their parents and guardians (Shepard 1996, pp. 347). Many are preparing to leave home and become responsible for their own food choices and access. However, studies suggest that despite positive trends in school food quality and health overall in elementary and middle schools, school food environments have become increasingly unhealthy at higher grade levels (Finkelstien 2008).

There are many ongoing conversations about how to influence these teens' food choices to be healthier and, in some cases, more sustainable. However, these conversations continue to be centered around making the "correct" nutritional choices and focus on the

impacts of individual behavior on personal health. While providing students with nutritional education is very important, it is only one piece of a much larger conversation. In particular, students who are marginalized, low-income, or have experienced food insecurity have often had their ability to make choices about their food and nutrition severely limited. If they participate in the National School Lunch Program (NSLP), what foods they eat at school are decided by an interconnected web of policy, politics, and systems outside of their control and often outside of their knowledge. They are taught to make choices in the classroom but, in practice, their ability to make choices is limited or removed entirely in the cafeteria. In communities where access to fresh and healthy food is limited, often referred to as ‘food deserts,’ this lack of choice may extend outside of school as well. This often stigmatizing experience perpetuates disparities in food and subsequently health that can negatively impact the student both during their school years and after (Karnaze 2018).

Like all wicked problems (Buchanan 2008, pp. 15-16), there is no one fix for this inequity; it comprises cultural preferences and biases, systemic racism, unfair wages, food lobbies, education budgets, supply chains, education gaps, etc. Thankfully, there is an inspiring amount of ongoing work being done to improve cafeteria spaces and, as previously stated, to educate students. Much of this work takes the form of programs and interventions that attempt to influence elementary and middle school students’ choices—for example, a new cafeteria layout that adds an express line for food items that include fruits and vegetables. The importance of this work should not be overlooked. These interventions are part of addressing the challenges that exist within the current model of school cafeterias.

However, there is a need to look beyond the problems that exist, and the solutions we develop to address them, and ask: what is the common goal we are working towards? What does the equitable, sustainable, and healthy cafeteria space of the future actually look

like? These questions are best addressed by the students themselves.

The current school cafeteria system places value on cost and efficiency over student, community, and environmental well-being (Foodcorps 2019; Hamerschlag and Kraus-Polk, 2017). This is reflected by the ongoing challenges in all areas of cafeteria systems, including poor food quality, stigmatization of students, disconnects with educational goals, and negative environmental impact. Despite being the main stakeholders in school cafeterias, students' voices and agency are only being considered peripherally or removed entirely. This impedes the sustainable and equitable reformation and development of these spaces and removes opportunities for students to gain important skills, attitudes, and knowledge as 21st century citizens. To address these issues, this research seeks to explore three questions:

- 1) What are student goals for the future development of cafeterias?
- 2) How can high school students become an active voice in designing the equitable and sustainable cafeteria of the future?
- 3) How can this design process be empowering so that students view themselves as active change agents in their food systems?

STEEPVA Analysis

STEEPVA is a research method (Loveridge 2002, pp. 11-12) for examining a topic through different lenses, in this case high school cafeterias and, more broadly, student school food experiences. Here STEEPVA is used as a brainstorming tool to collect information and generate questions rather than a rigorous scenario-based process. In this analysis, the "A" or "Aesthetics" was added by Professor Audrey Bennett of the University of Michigan in 2019 and is included because of its relevance to the topic area and the important role of visuals in design work.

Social

Eating together is one of the oldest forms of human social interaction. Sharing food is a way to show care and compassion for others. In schools, the cafeteria becomes an opportunity to socialize with friends, build personal identity, and find enjoyment through the communal activity of eating. Other social aspects affect students' cafeteria experiences, including their interactions with staff, length of the lunch period, how the school treats students of different socio-economic standing, and to what degree their food supports their desired identity and makes them feel valued. In addition, the design and layout of the cafeteria space influence student social interactions. For example, long banquet style tables allow larger social groups to sit together but may present a challenge for students who prefer to eat alone or with small groups. How the social interactions have been affected by COVID is largely unknown but, most likely, students' social interactions are much more limited to a small in-person cohort, a few close friends online, or family members who are home with them for virtual schooling.

What would a cafeteria that supported and validated student identities through food and social interactions look like?

Technological

From the school perspective, technology in the cafeteria has changed very little in the last few decades. Major shifts are mostly confined to the use of the internet and screens to share menus and food information and to more efficiently prepare “heat and serve” food. However, the availability of online menus allows students and parents to stay informed and plan ahead. This is especially helpful for students with dietary restrictions but may also create more transparency around the food being served. In the words of one interviewee about her experience with free school breakfast in the late 90s, “I think if my parents knew what they were feeding me, they would not have let me eat it.”

On the student side, the technology space has changed drastically in just the last decade, and while not necessarily related to food, the use of cell phones and computers impacts social interactions and behaviors within the cafeteria. Although the impact of cell phone usage on food-specific social interactions in schools is not known, multiple studies have been done showing a negative correlation between cell phone use and other areas of the school (Felisoni 2018; Kuznekoff 2012). One study examining the impact of technology on eating behavior suggested that cell phone use could even be associated with overeating in adolescents (Teo 2017). However, within cafeterias, there may also be some benefits. Cell phones allow students to look up information as needed, which means they are no longer reliant on school staff for diet and food-related questions. The use of social media to share images of food and food experiences (both positive and negative) creates a new opportunity for students to interact around their food and push for change with initiatives like DoSomething.org’s “Fed Up” campaign. COVID-19 has drastically impacted this space on both sides, with large school meal distribution outside of the cafeteria and virtual schooling, making students rely on technology for social interactions during the school day.

How can future cafeterias incorporate technological advances that promote social inclusion, affirm cultural identities, and build student connections to food?

Economical

The dominant cafeteria model in the U.S. is centered around cost. U.S. public schools face a constant battle to stay financially afloat, as evidenced by a 2020 study that found that schools are underfunded by as much as \$150 billion annually (The Century Foundation Report 2020). School administrations must make every cent count, and the cafeteria is no exception. Some schools choose to hire a food service

provider such as Chartwells to staff and supply their cafeterias. These large, often multi-national corporations operate on for-profit models and are frequently partnered with other private companies like Nestle. Schools that provide their own food rely on state and federal funding and sales from à la carte food items. Public funding and student purchases play an important role in maintaining cafeteria budgets. Virtual learning during COVID-19 has disrupted both of these money sources, and school districts across the country have reported a combined loss of over \$500 million as of May 2020 (School Nutrition Association 2020).

What would a cafeteria that placed student health and well-being above cost and efficiency look like?

Ecological

Because school cafeterias play a large role in our food system, they also play a large role in our relationship with the environment. How and what cafeteria food is produced and served, how much is wasted, and how students approach their food choices all have large implications for the future of our ecological systems. Currently, a large percentage of cafeteria food is produced using industrial production, packaging, and transportation, which is reliant on extractive and profit-driven practices. Many food items (or all items in the case of most distributed meals during COVID-19) are individually packaged creating a large amount of plastic waste. In addition, food waste is a common problem within cafeterias, with milk cartons and fruits and vegetables being the most commonly cited items because they are required for reimbursable meals but not necessarily desired by students (Shanks 2017). During our interviews with students, many reported that their fruit and vegetable often consisted of a bag of raw carrots or broccoli and an orange or apple. These took longer to eat and had less appeal than something fresh or prepared, such as roasted broccoli or a salad. Many

students admitted to simply throwing much of this raw produce away even if they were concerned about environment issues.

However, changes to school food can make sizable positive environmental impacts. In a case study done by the Oakland Unified School District (Friends of the Earth 2017), they were able to lower their carbon footprint by 14% over the course of 2 years. The cafeteria also provides an opportunity for students to learn about the environment through food, although this is dependent on the resources and curriculum at their school.

What would a cafeteria that preserved ecological systems and built emotional connections between students and the environment look like?

Political

The political sphere of cafeterias is complex, particularly for the majority that serve free or reduced meals subsidized through the USDA National School Lunch Program. Every five years, an increasingly politicized group of leaders and scientists meets to draft the updated USDA Nutrition Guidelines. These guidelines then serve as the basis for what food is served in public school cafeterias and the rules for what makes a reimbursable lunch. Schools must follow these guidelines if they wish to receive federal subsidies, which are (to some extent) influenced by large food lobbies such as the dairy lobby. Other aspects of the cafeteria are governed by elected school board officials or other politicized positions like Principal and Vice Principal.

What would a cafeteria look like where decision-makers worked collaboratively with students to ensure policies fit their needs?

Values

What values exist in this space is highly variable and dependent upon the stakeholder. A food service provider may value food quality and profits, while a student may value the social environment and diversity of food options. However, many of the current challenges that exist in cafeterias, like so many other aspects of a capitalist society, can be tied back to the underlying values of cost and efficiency.

What would a cafeteria look like if student and planet health were the most important values?

Aesthetics (or Visuals)

Visuals play an important role in cafeterias, both in educating students and influencing food choices. Cafeterias often employ some level of marketing to encourage students to purchase food items. This might consist of playful names, pictures, illustrations, and highlighted meal options. Studies have shown that the use of enticing names and visuals can encourage students to make healthier food choices (Gordon 2018). Educational visuals are also used in cafeterias, most often to share nutrition information. However, the most widely used cafeteria visual is the USDA MyPlate, which replaced the Food Pyramid in 2011. This graphic represents a highly simplified version of the USDA Nutrition Guidelines and shows how to build a balanced meal. While heralded as an improvement, MyPlate has been criticized for being highly generic, unrealistic, and including milk with every meal (Fernando 2020).

What would MyPlate look like if it was created for each student individually based on their culture, diet, and health?

DESIGN METHODOLOGY

The design approach for this research is broken into three parts: why, what, and how. The “why” addresses the underlying motivations of design that this work seeks to align with — in essence, the reason this design work was undertaken and to what end. The “what” explores the types of design practices that guide the research, and the “how” examines the methods and tools used to carry out the research (Figure 1).

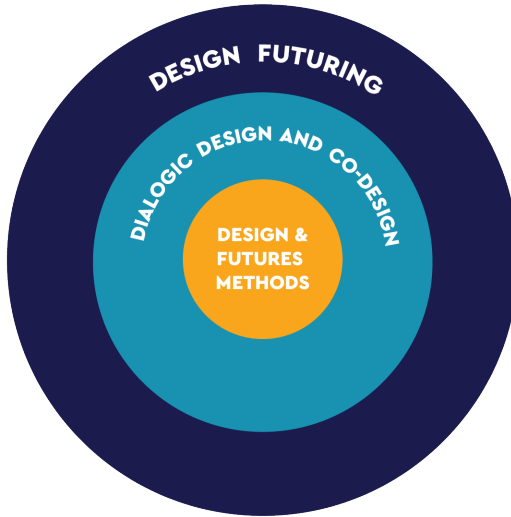


Figure 1. Visualization of design methodologies

Why: Design Futuring

Design, for a variety of good reasons, is no longer a field solely focused on form. In the US, the increasing threat of climate change, coupled with a global pandemic, systemic racism, and an increasingly polarized political system, has created an environment that does not just need change; it demands it. As design practitioners, to continue repeating the same patterns of commercial or self-motivated work is functionally equivalent to watching the world burn. Yet, it is only through the act of designing that we are able to create a different, better future than the one we are careening towards now. In the words of Tony Fry in his book *Design Futuring*, “Giving recognition to the proposition that we only have a future by design obviously takes us to the question ‘how can a future actually be secured by design?’” (Fry 2009, pp. 3).

Fry suggests that to answer this question, we must view design as a “redirective practice,” taking energy from existing trajectories and pointing them in new directions. Designing as a way of “redirecting”

humanity towards a sustainable and equitable future is an act of futuring. However, design futuring is more than a state of mind, it requires a set of principles that seek to build and shape communities with the power to navigate the challenges of fundamental change (Fry 2009, pp. 113).

This work seeks to ground itself in design futuring on several levels: first, by acting as a redirective practice for students through engaging them in the design process of critically examining their current environment and envisioning a new future; second, by giving students the tools to act as “signposts” for others, making the defuturing nature of current pathways visible and prominent; third, by seeking to build and strengthen school communities, which are critical to realizing actual change. During this research it became apparent that disconnects between members of the school community (e.g., school administrators, food service providers, and students) fostered unsustainable and inequitable practices, while connections inspired positive and meaningful change. Supporting the development of these communities also creates the potential for futuring activities to expand beyond the walls of the cafeteria or school, and for “the school community [to] press the process of community building outward, progressing in concentric circles of inclusion” (Redding 1991).

What: Dialogic and Co-Design

This research is guided by the philosophies of dialogic design and co-design. Pioneered by Ezio Manzini, dialogic design is a practice “in which different stakeholders (design experts included) bring their specific skills and their culture. It is a social conversation in which everybody is allowed to bring ideas and take action, even though these ideas and actions could, at times, generate problems and tensions” (Manzini 2016, pp.58). Co-design is defined by Sanders and Stappers (2008) as “the creativity of designers and people not trained in design

working together in the design development process.” This design work cannot be accomplished in isolation but depends on the assets of a diversity of stakeholders. The trained designer becomes that of a facilitator, creating and maintaining a space for the creativity and ingenuity of untrained designers to flourish.

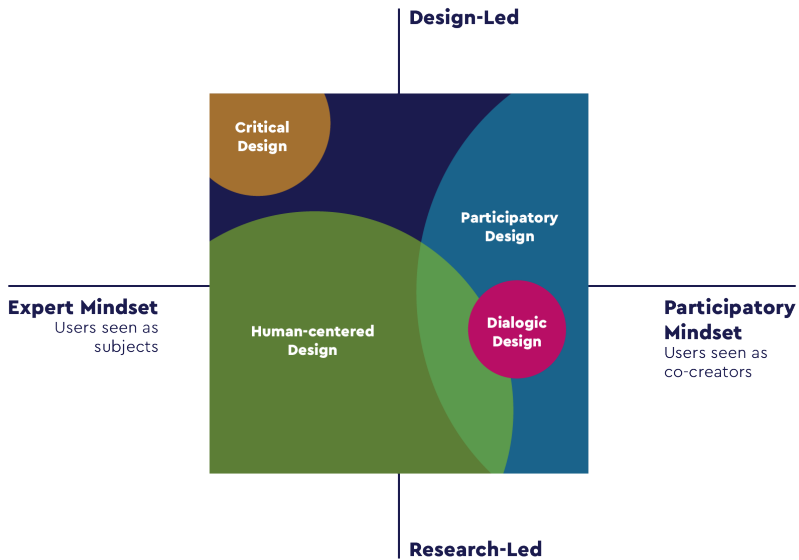


Figure 2. Dialogic Design (adapted from Liz Sanders)

Crucial for this work is the opportunity for conflict or disagreement to play a role in the design process. It is the nature of wicked problems to encompass a diversity of belief systems and viewpoints that are often at odds. In school cafeterias, this can be seen in the opinions of students, teachers, parents, administrators, and policy makers. It is not the job of the trained designer to determine which of the presented views are right or wrong, but to create an opportunity for their expression and provide the tools for them to be critically evaluated by other stakeholders.

In addition, this research seeks to combine the ideas of Empowerment Theory with the philosophies of dialogic and co-design. Although 21st

century designers often describe empowerment as a metric for success in their work, designing is not an inherently empowering process. Rather “empowerment is an intentional, ongoing process centered in the local community, involving mutual respect, critical reflection, caring, and group participation, through which people lacking an equal share of valued resources gain greater access to and control over those resources” (Cornell Empowerment Group 1989). It assumes that “(1) Individuals... understand their own needs better than anyone else and hence should have the power both to define and act upon them. (2) All people possess strengths upon which they can build. (3) The process of empowerment is assumed to be a lifelong endeavor. (4) Personal knowledge and experience are valid and useful in coping effectively.” (Joseph 2019, pp. 143) Using this definition and set of assumptions, designers must actively work to ensure that both the process through which they engage with stakeholders and the outcomes of this process are empowering. Empowerment cannot simply be viewed as an outcome; it must be baked into every stage (Swift and Levine 1987). Moreover, the design process should help people develop critical thinking skills and tools for self-evaluation so that they can continue work after the designer has left.

Case Study

Youth Empowerment Solutions (YES) Program - How a creative curriculum can empower youth (www.yes.sph.umich.edu)

To create and measure meaningful empowerment is challenging. Although not a project from the design field, the YES Program is an excellent example of empowering youth through creativity and community building and is grounded in Empowerment Theory. The program is based on the concept that a person is empowered when they believe, “that he or she is capable of influencing a given context (intrapersonal empowerment), understands how the system works in

that context (interactional empowerment), and engages in behaviors designed to exert control in that context (behavioral empowerment)” (YES Curriculum 2017, pp. 10). YES was created by Mark Zimmerman of the University of Michigan School of Public Health in 2004, and focuses on reducing violence in black and Hispanic middle school-aged students in Flint, MI.

At the start of each project, participants are surveyed to identify a baseline of their feeling of empowerment. They then join a group of their peers and participate in a carefully designed curriculum that puts the students at the center of making positive change in communities that are disproportionately affected by violence and promotes pride in their cultural identities. For example, the YES: Mexican American program adapts the core curriculum to focus on Hispanic leaders and Mexican culture. Some of the completed projects include murals and public gardens. While in session, the program is evaluated using multiple methods, and, at the end of their participation, the students are surveyed again. The success of the program has been repeatedly shown in both the process and outcome evaluations and is now being used as a model for other universities and community programs.

How: Design and Futures Methods

In order to make change, we must first be able to envision what a preferable future looks like and then act in an effort to create it. But envisioning a future, especially one built on different values than we currently have, is challenging. It requires tools that can help designers conceptualize and examine their current context while sparking imagination and critical thought. In her article, *Future Tense*, Angheloiu (2019) discusses how design and future methods such as future-casting, back-casting, scenarios, and design fiction from the fields of Speculative Design and Foresight might be used to explore creating sustainable and equitable change:

The current state of play opens the possibility for these complementary approaches and methods to be put to use in the context of exploring transformative change in line with the social and environmental challenges of our time. The use of design and futures methods to develop a prospective and systemic exploration of transformative change is a new area of exploration which enables conversation about the paradigm shift required in the context of the values, ethics, and societal norms... Building on the literature explored above, an emerging definition of design futures could be framed as ways to develop and deploy prompts, artifacts, and narratives to critically interrogate tomorrow's societal debates today; as such, it is intentional from the outset in its questioning of the dominant paradigm in the pursuit of preferable futures and therefore social and environmental justice. (Angheloiu 2019)

Other fields such as generative design research have also created various methods of providing people “a language with which they can imagine and express their ideas and dreams for future experience. These ideas and dreams can, in turn, inform and inspire other stakeholders in the design and development process” (Sanders and Stappers 2012, pp. 8). The futures created using these methods can be broken down into four groups: probable, plausible, possible, and preferable (Figure 3). This research focuses on the narrowest of these groups, the preferable (what do we want to happen). Dunne and Raby point out that these preferable futures are not straightforward. They require us to ask questions like, “What does preferable mean, for whom, and who decides” (Dunne and Raby 2013, pp. 4)? In our current state, these preferable futures are determined mainly by the private sector, shaped to provide the greatest profits and control of resources. This research seeks to generate new visions of preferred futures, ones that are grounded in equity, resiliency, and sustainability.

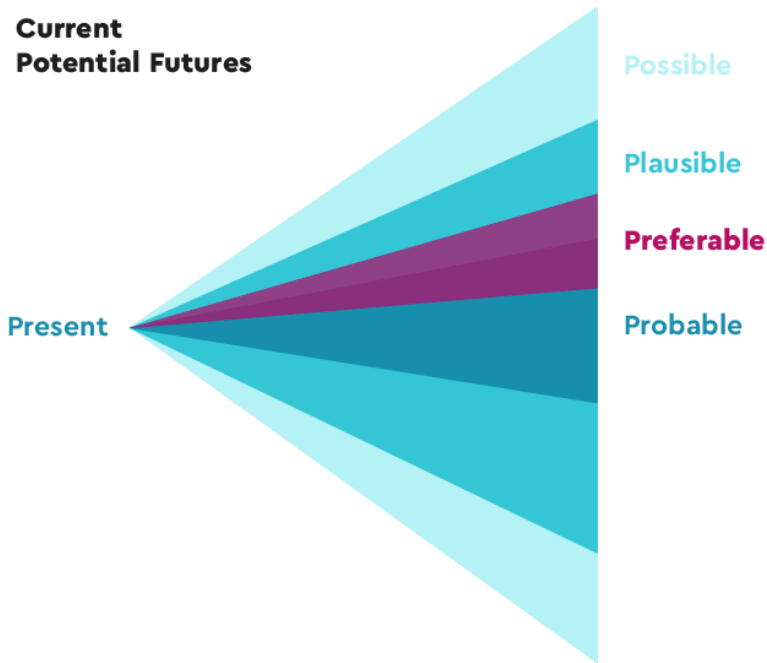


Figure 3. Future Cones (Adapted from "Speculative Everything," Dunne and Raby)

Design and future methods have an enormous potential for empowerment by giving people the tools and opportunity to imagine their own future for themselves. High school students are no strangers to having their futures dictated to them. Many are expectations set by their parents or teachers to attend college, find a high-paying job, etc. They are given career placement tests that instruct them on what jobs they are suited for. Some may simply feel that a desirable or different future is not possible and therefore do not engage in the activity of imagining it. Despite being the main stakeholders of the school environment, students are not often given a voice in their experience. (Kirshner and Pozzoboni 2011) Their courses are mostly predetermined to fulfill national education standards, their success is evaluated using standardized tests, and (if they eat in their cafeteria) their food choices are made by school administrators or, even further removed from them, a contracted food service provider.

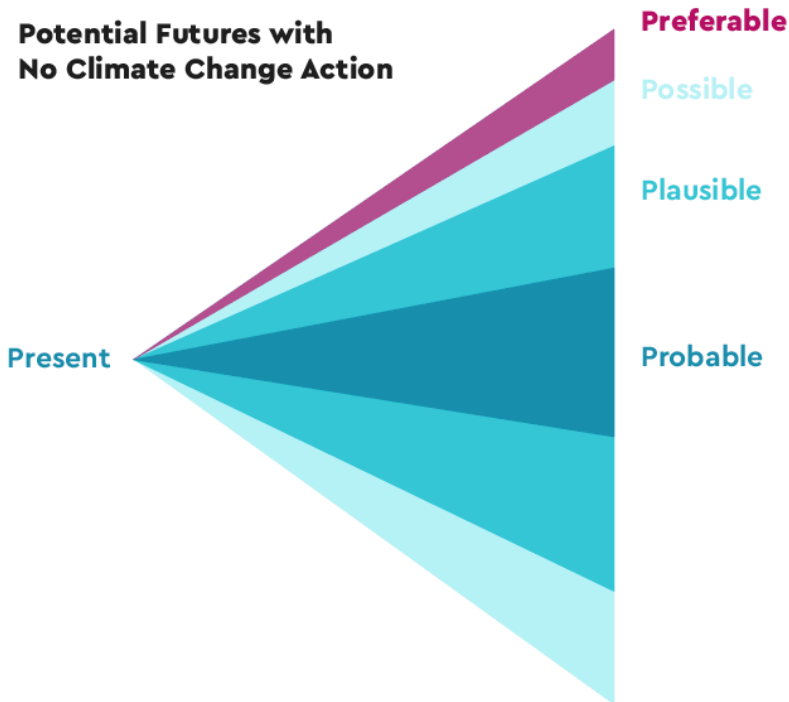


Figure 4. Future Cones with no climate action

This last example—the cafeteria—is where this research focuses. Food is an excellent entry point for design and futures work. Food crosses all racial, social, and political boundaries and is a lens through which we can examine larger issues of equity and access in health, labor, sustainability, and education. In addition, food systems are inescapably tied to the future of the planet and our species. Agriculture and land use accounted for approximately 24% of global greenhouse gas emissions in 2018, and that number can be expected to increase as the population grows (Environmental Protection Agency). If we do not make substantial changes to these systems, climate change will make preferable futures, those without substantial climate destruction, no longer probable or even plausible (Figure 4).

Our public school cafeterias have enormous potential for making

positive change in food systems, both in what they serve, and in their role in students' attitudes toward food. In the words of chef and activist Alice Waters, "If we change the criteria for purchasing all food in public schools, and buy directly from the farmers and ranchers that are caring for the land regeneratively, we will address climate change and teach the next generation the values of nourishment, stewardship, and community" (The Edible Schoolyard Project). These changes will not happen without the voices and visions of the students themselves.

Case Study

Climate Change and Me - Using speculative tools to empower youth to take action against climate change (www.climatechangeandme.com.au)

Design tools originating from the field of Speculative Design have shown great potential as an educational tool for empowering and activating youth in the wicked problem space. One exceptional example of this is the Climate Change and Me (CC+Me) projects. Started in 2013 by a team of researchers in Australia and the UK, CC+Me is a series of projects that seek to include youth in the development and deployment of climate change curricula. The team found that there was a need to identify new and radical methods for educating young people about climate change, ones that crossed disciplinary boundaries between hard sciences, humanities, and the arts. Starting with a series of workshops in schools, dubbed "co-research playspaces," students created climate change-themed projects including writings, videos, photographs, poetry, and drawings (Cutter-Mackenzie, and Rousell 2014). From these workshops, speculative fiction arose as a powerful educational tool for creating new opportunities for students to address the Anthropocene and climate change. The researchers found that "speculative fiction has the potential to empower young people to respond to the challenges

of the Anthropocene” (Cutter-Mackenzie, and Rousell 2014, pp. 668). (Anthropocene refers to our current geological epoch where human activity is the dominant influence on the environment.) In addition, the CC+Me projects have demonstrated the value of reconsidering “children as researchers, as artists, as writers, as scientists, and as philosophers who are intimately attuned to planetary changes.” These projects and other curriculum leveraging speculative tools provide “a distinct opportunity for children and young people to actively reshape

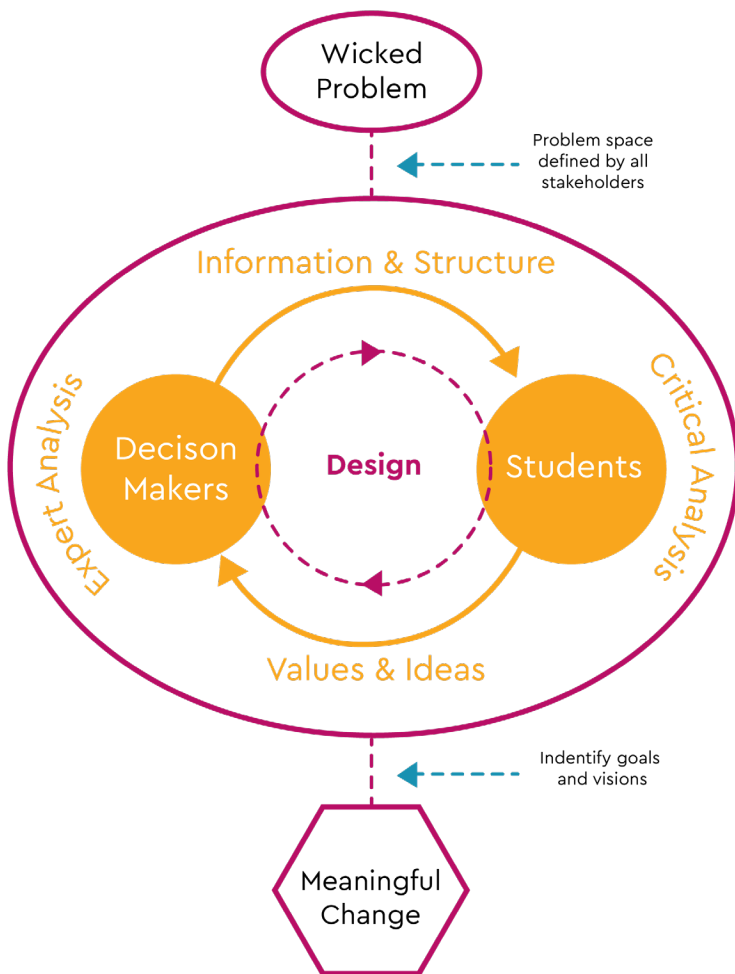


Figure 5. A model for dialogic design empowerment

the very nature of climate change education through such active speculation and the creation of possible futures” (Cutter-Mackenzie, and Rousell 2014, pp. 668).

A Model for Dialogic Design

Empowerment

The outcome of this research is an online platform that empowers students to become designers of their own school food experiences using the methodologies of dialogic and co-design, through the lens of Empowerment Theory. Design of this form does not readily align with existing models and frameworks. It requires that the designer serves in a facilitative role, creating and supporting an ongoing process of sharing information and ideas between stakeholders and decision-makers. To support this and future work in this space, we have created a model for Dialogic Design Empowerment to guide the development and use of the platform, as well as future work (Figure 5).

In this model, wicked problems are tackled through the process of setting and achieving long-term goals to create positive change. These long-term goals are guided by the preferable futures generated through an ongoing dialogue between (in this research) students and decision-makers in cafeteria systems. The designer sits in the space between decision-makers and students, facilitating the movement of information and structure (e.g., limitations, rules, and guidelines) to students and values and ideas to decision-makers. The designer facilitates this process, setting up new pathways for dialogue, increasing accessibility, ensuring that transparency is preserved, and values are upheld. The designer can provide these tools of critical analysis to encourage continued and thoughtful participation in the process. This should serve to generate long-term goals and empower students through its process and outcomes. Following Zimmerman’s

definition of empowerment, the process should teach students how to understand the systems that affect them within the wicked problem space, demonstrate through a dialogue with decision-makers that they are capable of making change within that space, and create a path for students to affect change. Students' voices and ideas should be meaningfully incorporated into the decision-making process around school food.

By serving in this role, designers also take on another important responsibility: continuing to engage participants and generate interest. Cafeterias are rarely a top priority in the hierarchy of issues school staff and administration are tackling; high school students are equally busy and often focused on their social and academic development. But through the careful use of design tools, and consistent implementation of the values listed here, designers have the ability to engage people in this process and contribute to the creation of a better, brighter future. This research and outcomes focus on the student side of this model and on creating tools to form the bridge between students and decision-makers.

Empowerment-Oriented Language

Language is important, particularly for a field like design where stakeholders are often not familiar with the vocabulary of trained design researchers and practitioners. If the appropriate language isn't used, or definitions aren't communicated, the designer risks disempowering and alienating their participants. Zimmerman suggests that "the traditional language used to describe the helping process unwittingly encourages dependence on professionals, creates the view that people are clients in need of help, and maintains the idea that help is unidirectional. The language of professionals limits the discovery of indigenous resources and reduces the likelihood of people helping each other. An empowerment approach replaces terms such as 'client' and

'expert' with 'participant' and 'collaborator' "(Zimmerman 2000, pp. 44). When applying an empowerment approach to design language, definitions must be clearly stated, and place stakeholders as equal participants rather than recipients — in essence, to position them as designers rather than being designed for. The terms and definitions used in this research and the platform are listed below, divided into five categories (the four cafeteria areas and design-specific terminology).

Design

Design: The act of envisioning a preferred future. Anyone can design.

Designer: Someone (in this case a student) with the agency to make a decision and set an intention to make a change.

Design Thinking: the interactive process used to understand and identify solutions to a challenge or problem. Empathize, define, ideate, prototype, test.

Co-Creation: The process where designers work together with stakeholders at every step of the design process to generate solutions.

Visioning: A picture of what success looks like at a point of time in the future. Should describe a specific, positive, and inspirational future scenario.

People

Empowerment: The process of gaining power and autonomy over your life and environment.

Empathy: Developing a deep understanding for how someone feels, thinks, and acts and how they are affected by a particular challenge.

Stakeholder: A person or group who is directly affected by a challenge,

system, or situation.

Access: The ability to get the things you want and need.

Equity: Fairness and justice in the way you are treated. Based on the understanding that we don't all have the same privileges and that we must continuously acknowledge, evaluate, and adjust to correct these imbalances.

Equality: Providing the same to all. Assumes that everyone has the same needs.

School Food Experiences: Students' interactions with food in schools including education, school gardens, meals, events, etc.

School Community: The individuals including students, teachers, staff, parent, etc. who are involved in the operations of the school. They both derive value and contribute value to the school and the education of its students.

Plate

Food Systems: All aspects of feeding a population including inputs (like water), outputs (like crops), and infrastructure (like cafeterias). Includes production, processing, distribution, consumption, waste.

Sustainable Food: Food produced using resources in a way that protects them for the future. Sustainable food systems support people, the planet, and human prosperity.

Nutrient-dense Foods: Foods that are rich in beneficial nutrients like proteins, vitamins, and minerals with proportionally low-calorie content.

Ultra-Processed Foods: Industrially made foods with five or more ingredients.

Food Service Provider: The company that is contracted by the school to provide food and sometimes staff for the cafeteria.

Diet: The food you consume on a regular basis. Your diet may be determined by your nutritional needs, cultural identity, allergies, and/or access to foods.

Place

Cafeteria: The place in schools where students receive and eat meals (usually lunch and sometimes breakfast).

Cafeteria System: The system that encompasses how and what food is served in schools. This includes the physical space as well as the social and political systems that surround it.

Cafeteria Model: One possible version of a cafeteria or cafeteria system.

Geographic Context: The geographic location and environment where the cafeteria is located (e.g., urban, rural, suburban).

Policy

United States Department of Agriculture (USDA): The federal government body responsible for creating and enforcing laws related to farming, forestry, rural development, and food. Established in 1862.

National School Lunch Program (NSLP): A federal program that provides free or reduced-cost meals to schools through reimbursements.

USDA Nutrition Guidelines: Provides rules for Federal nutrition programs like the NSLP and determines what constitutes a balanced reimbursable meal.

U.S. Farm Bill - A large group of laws that govern how food is grown and distributed. It also includes funding and guidelines for programs like SNAP and NSLP.

The State of School Cafeterias

To ask what we want cafeteria spaces to look like in the future, we must first understand what they look like today. There are few to no federal regulations for the design of school cafeterias outside of establishing a minimum number of square feet per student and ensuring that these spaces follow the Americans with Disabilities Act and food safety standards. This means that what cafeterias look like across the country can vary widely. States and sometimes individual superintendents have the power to dictate what these spaces look like and how students interact with them. Take the state of Michigan as an example. Each school district can determine its own rules and standards for serving and eating food within its schools. This means that some districts may have a 1-hour lunch period while others may only have 20 minutes. Many school cafeterias are mixed-use spaces, sharing the requirements of other types of activities such as school



Figure 6. A school cafeteria lunch (image from fedupwithlunch.com)

performances, extra-curricular groups, and assemblies. Thus it is

dangerous to make any generalizations about the current physical design of school cafeterias. In the course of this research, we have seen a vast diversity encompassing large, newly remodeled spaces flooded with natural light and modern furnishings to closet-sized rooms that lacked access to even basic kitchen equipment.

The food served in the cafeteria can be just as varied, although it is here that federal regulations become evident. In 2018 (the most recently available data), nearly 100,000 public and nonprofit private schools participated in the USDA National School Lunch Program (NSLP), which is responsible for providing subsidies for free and reduced-cost lunches and setting federal meal pattern guidelines (USDA National School Lunch Program). The NSLP provides on average 30.4 million lunches to students daily, and almost three-quarters of school cafeterias serve lunch for free or at a reduced price through this program. Disadvantaged students can qualify for NSLP in several ways based on family income, family participation in other federal programs, and status (such as homeless, refugee, or foster child). (Karnaze 2018, pp. 633) The NSLP has been the target of criticism for decades, however, and for good reason. In the past, school lunches had become notorious for their high calorie and high sodium content and for consisting of ultra-processed foods containing artificial flavors and colorants. Perhaps most infamously, under the Reagan administration, a proposal was put forth to include ketchup and pickle relish as vegetables in school lunches (U.S. Holds The Ketchup In Schools 1981). In essence, large inequities were created between students with resources who could bring healthier meals from home, and students without such resources who relied on the food provided by the NSLP or what they could access cheaply at home or at retailers.

Thankfully, due to the diligent efforts of many, school lunches seem to be improving. A large study published by the USDA in 2019 suggested “that the updated nutrition standards have significantly improved the nutritional quality of school meals” (School Nutrition

and Meal Cost Study 2019, pp. 3). This study examined the NSLP on the basis of nutrition, cost, and waste, and demonstrated statistically significant improvements in the nutritional value of school lunches. The study also showed that the “cost of producing an NSLP lunch exceeded the average USDA subsidy for a free lunch” (School Nutrition and Meal Cost Study 2019, pp. 31), suggesting that the costs of providing these better-quality meals is being passed on to the schools and compensated for through student lunch payments, à la carte items, local funding, and other revenue forms including privatized partnerships with companies like Coca Cola. This gap between the cost of a meal and the USDA subsidy creates a disparity between schools with resources, which are able to cover these additional costs, and schools that cannot. This is exacerbated by the fact that 45% of the cost of an NSLP meal comes from labor. According to the 2019 data from the US Bureau of Labor Statistics, the mean annual salary of a school cafeteria worker is \$26,980, placing them far below a livable wage and at the poverty threshold for a family of four. If school cafeteria workers were to be paid a living wage, the cost of school lunches would increase significantly and continue to widen this disparity gap.

Providing a nutritious meal at an affordable price should be the most basic requirement for a federal food program like the NSLP, and, although we have established that meeting this requirement is uneven at best, we should be examining these cafeteria programs with a broader lens. The current metrics for success of the NSLP do not consider the sustainability, equity, or cultural relevancy of the food served. This has been a noted critique of the USDA federal meal programs and has become a particularly relevant topic with the USDA’s release of new guidelines for 2020-2025, especially during a critical period of discussion around structural racism and climate change. In a recent Civil Eats article, Gosia Wozniacka explains,

The guidelines, which will be published later this year,

dictate federal nutrition policies and form the basis for governmental food assistance programs and nutrition education efforts. But communities of color say the recommendations and the current guidelines are insensitive, largely unreachable, and even irrelevant to the nation's major racial, ethnic, and cultural groups. They point out that the committee of scientists is mostly white and many of the studies it analyzed don't reflect the nation's growing diversity. Such considerations are especially important now, as many of these populations are at elevated risk for COVID-19. (Wozniacka 2020)

Outside of the guidelines, the way food is served in the cafeteria has also created notable disparities. Through school policies separating paying from non-paying students and public identification of students who cannot afford their lunch, "school cafeterias across the country are consistently identifying, segregating, and ultimately stigmatizing students who participate in the NSLP" (Karnaze 2018, pp. 666).

This is not just a current issue, but one that has shaped the NSLP and other school lunch programs since their inception. "School lunch programs (SLP) are the product of Progressive-era reforms, which attempted to tackle the problems exposed by urbanization, industrialization, and immigration" in the late 19th century (Winchell 2009, pp. 118). This was a time when nutrition science was expanding rapidly, and an early goal of the field was "to convince the lower classes that inexpensive food could be nutritious if chosen correctly. Nutrition science inadvertently 'fed the notion that social inequality was due to cultural habit rather than economic condition' by suggesting that the poor were simply bad choice makers" (Winchell 2009, pp. 118). In the 1940s, school lunch programs also became the focus of "Americanization." Influential individuals such as anthropologist Margaret Mead pushed for the removal of all spices and flavorings besides salt in school lunches to create a unified national identity.

Students of different cultural backgrounds were taught to eat “like Americans” in the Cafeteria (Winchell 2009, pp. 118).

While the design of cafeterias and the food they serve is variable, we can make one generalization: the majority are based on a single model. This model of school cafeterias was born out of the industrial revolution and the need to provide meals to students whose working parents no longer had the time, and, in many cases the money, to provide them with an adequate lunch. Students line up with trays and slide them down a line selecting food as they go. Most students are given 20 to 30 minutes to eat their meal before they return to the classroom. This is the school cafeteria model common throughout U.S. public schools. It seems simple, effective, and perhaps even logical. This model, like so many products of the swiftly industrializing food system, checks two boxes: it is efficient, and it is cost-effective. However, this model in schools has suffered since its implementation. School cafeterias are chronically under budget, their staff is underpaid, and they have arguably failed at what should be their number one objective: to nurture growing minds with nutritious food. They rely on an industrialized food system to produce cheap ingredients that are neither sustainable nor often healthy. In addition, like so many American federal programs, the USDA and the NSLP have a long history of unjust and discriminatory practices, shaping the cafeteria model we have today.

COVID-19 has forced schools to rethink how they operate and created an opportunity to re-envision how they educate and feed children. Lucy Flores of FoodCorps perhaps framed this best when she asked, what if we treated...

... school food not as a cost center to be minimized but as a value center to be leveraged. What if school food could show us a future where every child gets the nourishment they need to thrive? What if it could affirm children’s cultures and identities and invite their agency

to the table? What if it could show children they are valued and cared for in a way that food—the currency of human connection—has uniquely done for eons? (FoodCorps 2019, pp. 9)

Cafeteria Improvement Programs

Thousands of individuals and organizations across the country work tirelessly every day to improve their cafeterias through new and innovative programs with noticeable results. One example is the Smarter Lunchrooms Movement. Developed by the Cornell Center for Behavioral Economics in Child Nutrition Programs, this movement aims to increase healthy eating habits in schools. The program created a scorecard for schools to evaluate their cafeterias based on strategies in a variety of categories including fruits, vegetables, atmosphere, and involvement. After the scorecard is completed, stakeholders are

SMARTER LUNCHROOMS MOVEMENT
National Office

SMARTER LUNCHROOMS SCORECARD

Date _____ School Name _____ Completed by _____

The Smarter Lunchrooms Scorecard is a list of simple, no-cost or low-cost strategies that can increase participation, reduce food waste, and increase selection and consumption of healthy school food.

INSTRUCTIONS

1. Review the scorecard before beginning.
2. Observe a lunch period. Check off statements that reflect the lunchroom.
3. Ask other school nutrition staff, teachers, or administration about items that have an asterisk.*
4. Tally the score.
5. Discuss the results with stakeholders. Choose unchecked strategies to implement in the lunchroom.

SmarterLunchrooms.org

FOCUS ON FRUIT

- At least two kinds of fruit are offered.
- Sliced or cut fruit is offered.
- A variety of mixed whole fruits are displayed in attractive bowls or baskets (instead of stainless steel pans).
- Fruit is offered in at least two locations on all service lines, one of which is right before each point of sale.
- At least one fruit is identified as the featured fruit-of-the-day and is labeled with a creative, descriptive name at the point of selection.
- A fruit taste test is offered at least once a year.*

Focus on Fruit Subtotal ____ of 6

VARY THE VEGETABLES

- At least two kinds of vegetables are offered.
- Vegetables are offered on all service lines.
- Both hot and cold vegetables are offered.
- When cut, raw vegetables are offered, they are paired with a low-fat dip such as ranch, hummus, or salsa.*
- A serving of vegetables is incorporated into an entrée item at least once a month (e.g., beef and broccoli bowl, spaghetti, black bean burrito).*
- Self-serve spices and seasonings are available for students to add flavor to vegetables.
- At least one vegetable is identified as the featured vegetable-of-the-day and is labeled with a creative, descriptive name at the point of selection.
- A vegetable taste test is offered at least once a year.*

Vary the Vegetables Subtotal ____ of 8

Figure 7. A portion of the Smarter Lunchrooms Scorecard

encouraged to discuss the results and identify unchecked strategies that they wanted to implement. Schools are offered support by trained professionals to aid in evaluation and implementation, most often on the basis of increased fruit and vegetable consumption. In a systematic review of the literature on Smarter Lunchroom movement strategies, two surfaced as being the most effective: Lunchroom Atmosphere and Student Involvement. The Lunchroom Atmosphere strategy focuses on transforming cafeterias into friendly, educational environments to promote the consumption of healthy foods (Mumby 2019). The Student Involvement strategy focuses on the involvement of students in developing menu offerings and promoting the consumption of healthy fruits through the creation and use of student designed marketing materials (Cornell University, 2015). There are many other studies that demonstrate the positive impact of cafeteria-based programs on healthy food choices (Gordon 2018). The research repeatedly illustrates that making changes to the traditional cafeteria model can help students make healthier food choices, especially when students are involved.

There are also examples of what celebrity chef Jamie Oliver referred to as cafeteria “food revolutions” during his 2009 reality television show. Despite being British and spurred by the narrative of American school cafeterias filled with fatty, nutrient-deficient foods and rising childhood obesity rates, Oliver brought his TV cameras into East and West Coast schools in an attempt to “revolutionize” their menus. He succeeded in shining a spotlight on an important issue in need of national attention, however, he failed to create lasting change within the schools he visited. His menu designs did not follow USDA nutritional guidelines, and, in a study by the West Virginia University Health Research Center, 77% of students reported being “very unhappy” with the new food. Oliver acted as a savior, attempting to rescue students without including them in the process or understanding the systems at play, and villainized cafeteria staff and school administrators in the process.

These examples demonstrate some of the diverse range of strategies employed by cafeteria improvement programs. However, there are two critical but inadequately addressed issues with the majority of current programs that should be underscored: 1) they exclude high school students from decision-making, and 2) they prioritize individual healthy food choices (most often measured by increased consumption of fruits and vegetables) over all other aspects of the cafeteria (e.g., food equity and access, food systems, education, and culturally affirming socialization). High schoolers are at a critical point in their development where they are actively building identities around food that are separate from that of their parents and guardians. Many are preparing to leave home and become responsible for their own food choices and access. Not implementing these positive changes in high school cafeterias is a missed opportunity to empower the next generation to make healthy choices and become informed participants in their food systems.

For those programs that are in place in high schools, the majority are centered around influencing students to make the “correct” nutritional choices; other critical conversations about broader food systems — equity, religion, identity, and access — become secondary if they are present at all. These programs attempt to influence choice through strategies like changing meal names, pricing programs, and food placement in the cafeteria, but they fail to address whether the students have the ability to make these same choices outside of the school environment. For high schoolers, who may have jobs, off-campus lunch, and do their own grocery shopping, the benefits of a conversation about healthy choice that ends at the lunch bell is limited. For those students who may not have access to fresh, healthy food outside of school, the lasting value of influencing their choices solely within the cafeteria is questionable if their choices beyond that space are not also addressed.

These programs often focus solely on addressing health through

the lens of individual behavior, ignoring the impact of systems-level influences on student choice and health. This is particularly problematic for low-income students who have struggled with food insecurity. These students have had their ability to make choices about their food and nutrition severely limited both inside and outside of school. If they participate in the Free and Reduced Lunch Program, what foods they eat at school are decided by an interconnected web of policy, politics, and systems outside of their control and often knowledge. They are taught to make choices in the classroom, but, in practice, in the cafeteria, their ability to make choices is removed.

The need for a more holistic approach to food in schools has not gone unnoticed. In a 2017 article from the *International Journal of Health Promotion and Education*, Nanayakkara wrote that “senior secondary school students (i.e. those who are 16–18 years old) need to learn broad aspects of food literacy such as global and local food production methods and trends, and the political, social and economic background of the food system in order to make wise decisions about food” (Nanayakkara 2017). However, having these systems-level conversations are much more challenging than giving broccoli a fun name, and perhaps this is at least one explanation as to why so many cafeteria programs do not operate at the high school level.

Case Study

The Edible Schoolyard Project - Rethinking student school food experiences (www.edibleschoolyard.org)

There are pioneers who are rethinking the traditional model and coming up with new ways of addressing the challenges within cafeterias.

The Edible Schoolyard Project (ESY) is a notable example of what a healthier, sustainable future of school food could look like. The non-profit program was founded by chef and activist Alice Waters at King Middle School (Berkeley, CA) in 1995, with a mission to “provide a free

sustainable lunch for all students K-12,” purchase food from producers who care for the land and their workers, and “teach students the values of nourishment, stewardship, and community” (www.edibleschoolyard.org). As is clear in their mission statement, this program is unusual in approaching food in schools from a systems perspective. Rather than focusing on student behavior centered around “good” nutrition choices and food waste, the program places cafeterias at the heart of schools and uses food as a tool for students to build healthy connections with their culture, their education, their community, and their planet.

ESY is working to achieve these goals in several ways, including the “edible schoolyard” and their ground-breaking curriculum. The “edible schoolyard” is an accessible growing space established on underused land at King Middle School that serves as an innovation and education hub for their programs. This space provides students with opportunities to grow, cook, and eat food as part of their general education. “Chef Teachers” at King use the space to incorporate food into classes ranging from science to literature and integrate food into all aspects of the school. ESY grounds the development of the edible schoolyard curriculum in a “pedagogy for equity” that affirms student identities and connects their lived experiences to their education. In their words, “equity is both a means and an end in edible education” (www.edibleschoolyard.org), and forms the backbone of their work with students. This approach represents a distinct re-envisioning of both traditional and food-related education and has become a model for programs across the country.

The Importance of Student Voice

The importance of including student voice in decision-making within schools goes beyond the cafeteria and is especially critical for making equity-based reforms to our educational systems in general. This was underscored by Kirshner and Pozzoboni (2011) in a youth participatory

action research study conducted at an underperforming, minority high school on the brink of closure. Decision-makers (including the school board) viewed the impending school closure as a “rescue mission” to remove students from an educational environment with low standardized test scores and declining enrollment. However, the majority of students felt differently, even going as far as holding protests and walkouts in an attempt to keep their school open. Student sentiments about the school board’s decision-making process were summed up in one student statement, “Like, I don’t think that there was . . . any consideration for anyone. It was just like they decided to close it and there was nothing that the community could have did or said” (Kirshner and Pozzoboni 2011, pp. 1651).

Kirshner and Pozzoboni point to these conflicting narratives in their data to make a powerful case for including student voice in school decisions. They argue that equity-based reforms are strengthened when those in power work with rather than for students. They end by outlining two approaches for bringing students into the decision-making process: “outsider approaches” and “insider approaches.” Insider approaches are defined as strategies that “build partnerships between students and adult personnel that contribute to site-based decision-making and changes to classroom instruction” (Kirshner and Pozzoboni 2011, pp. 1661), and it is within this set of approaches that *The Lunch Club* platform is positioned.

Using this study as a foundation, Bron and Veugelers expanded on the case for student voice in schools by outlining five distinct arguments (Bron and Veugelers 2014):

- 1) The normative argument: Students are citizens with the right to participate in decision-making that affect them.
- 2) The developmental argument: Students are developmentally ready to have greater autonomy and responsibility within schools.
- 3) The political argument: Students are not a homogenous group;

therefore, schools need to include a diversity of student voices before making decisions that impact the student body as a whole.

4) The educational argument: Students learn important skills, attitudes, and knowledge when their voice is included.

5) The relevance argument: Including student voice in schools keeps students engaged and invested.

Although these arguments are intended to support the need for student voice in curriculum development, they can easily be applied to all decisions made within schools that impact students. Through this lens, the role of student voice goes beyond improving the decision-making process and becomes core to students' education and development. In Bron and Veugelers' words, "If we are serious about providing students experiences with skills like decision making, we must enable them to make decisions" (Bron and Veugelers 2014, pp. 136).

The importance of student voice in cafeterias has not gone unnoted. In their groundbreaking human-centered design research project "Reimagining School Cafeterias," FoodCorps outlines thirteen opportunity areas for cafeteria change (FoodCorps 2019). These areas were distilled from data collected with students and staff at nine schools across the United States. Number five on this list, "Student Agency and Voice," documents students' desire to have more say in the cafeteria and staff reflections about the current lack of student input. FoodCorps ends the section with a problem statement asking, "How might we create meaningful opportunities for students to share their voices and exercise agency in the cafeteria" (FoodCorps 2019, pp. 31)? *The Lunch Club* platform proposes one possible solution to this question.

Case Study

FoodCorps' Our Cafeteria Program – Bringing student agency to the

cafeteria

After completing the “Reimagining School Cafeterias” research project, FoodCorps initiated three pilot programs targeting the opportunity areas outlined in the report. The “Our Cafeteria Program” (OCP) was designed to address the need for “Student Agency and Voice” by creating a program that FoodCorps service members could implement at their middle school placements. This program uses a Project-Based Learning framework to guide students and service members through the process of organizing a project group, gaining the support of school administrators, using human-centered design methods to ideate a cafeteria improvement and implementing that improvement.

The OCP is particularly relevant to The Lunch Club platform in three major respects: 1) it leverages FoodCorps’ years of hands-on work in schools and the data collected during the “Reimagining School Cafeterias” project to provide a strong research backing for the importance of student voice in cafeterias; 2) it uses a human-centered design approach to elevate student agency and voice within the cafeteria and school setting as a whole; 3) it uses a Project-Based Learning framework to inform the program structure and learning activities.

After a successful pilot during the 2019-2020 school year, OPC demonstrated that “there is great value in student-led and designed experiences and that it is important to involve student voice in critical decisions and support student choice.” In addition, “stakeholders agreed that to truly improve the school cafeteria it was key that students have responsibility over their environment and experience” (FoodCorps 2019, pp. 8).

The Project-Based Learning Framework

Decades of research have demonstrated that students learn better by

doing (Thomas 2000). The Project-Based Learning (PBL) framework is a pedagogy that allows students to do just this by positioning students as designers and leaders of their own learning, focusing on real-world problems and contexts, and developing knowledge through inquiry. This framework organizes learning around projects where teachers act as facilitators, allowing students to work independently for long periods of time (Thomas 2000, pp. 2). It is particularly impactful when students are given the opportunity to design their own culturally and personally relevant projects.

PBL has great potential for acting as a bridge between educational goals and cafeteria improvement, as evidenced by the “Our Cafeteria Program.” However, research on PBL suggests that students may struggle when fully self-directed, particularly when they are asked to tackle complex challenges in their projects. According to Thomas (2002), “The effectiveness of PBL as an instructional method may depend, to a greater extent than we recognize, on the incorporation of a range of supports to help students learn how to learn.” OCP addresses this challenge through their trained service members, who use the detailed program guidebook to provide support and structure to students at every stage of their project. The need for thoughtfully designed support for PBL to be effective for students and their teachers has influenced the design of *The Lunch Club* platform and the inclusion of guided steps and check-in points throughout the process.

Core Elements of PBL



Figure 8. The core elements of Project-Based Learning (adapted from Buck Institute of Education)

DESIGN PROCESS

Project Partner

This research is undertaken in partnership with EduChange, Inc. Led by Catherine Saldutti, President and Founder, EduChange has been revolutionizing high school and adult education curricula for over 20 years and is uniquely focused on teaching with an equity lens and providing STEM educational tools that are contextual, integrated, and project-based. EduChange is an ideal partner for this research

for several reasons: 1) they are leveraging design and systems thinking as tools to both develop and modify their curriculum as well as pedagogical approach, 2) their science curriculum is integrative and features programs on food, nutrition, and fitness, and 3) they are invested in changing the paradigm of high school education to help students become better learners, thinkers, designers, and doers

Design Timeline

The research and design process was broken into three phases: inspire, ideate, and implement. Figure 9 shows the design process and lists the timeline for each phase, the sub-phases, and methods used.

Inspire: Explore

Fall 2019

Methods: Contextual Review, Interviews, Surveys, Future-casting, Diary Studies

IRB:

Research for *The Lunch Club* platform began in the Fall of 2019 with an initial exploratory research project at Community High School. Community High School is an alternative public high school (grades 9-12) located in Ann Arbor, MI. Approximately 450 students attend Community each year and are admitted using a lottery system. The school is known for its award-winning approach to education that emphasizes community involvement, hands-on learning, and opportunities for students to express their creativity through art, performance, and writing.

The school's location in the Kerrytown district creates a unique environment where students can integrate with the culturally diverse community of Ann Arbor through class projects, school-wide initiative,

Design Process

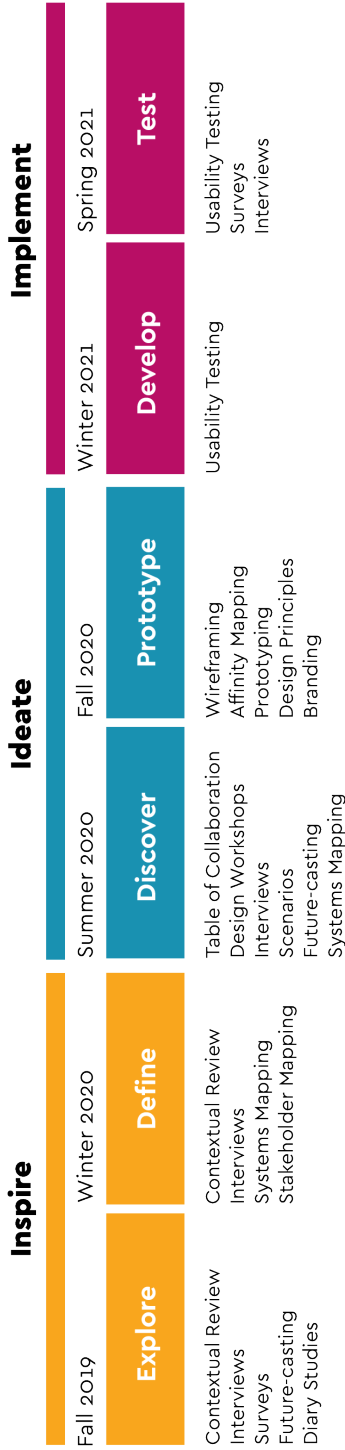


Figure 9. The design timeline

volunteering, clubs, proximity to activities at the University of Michigan and downtown amenities, and (most relevant to this research) food. Students have the privilege of being able to access food at the Ann Arbor Farmers Market, a diversity of restaurants and cafes, and even fresh seafood markets. However, this location also creates some challenges. The school is limited in space both inside the building and on their grounds as they are contending with businesses, residential housing, and university and city properties. The building itself is also older, being built in 1925 with the last major renovation in the 1970s, creating limitations for new infrastructure and additions.

The cafeteria was being affected by these challenges. It was a small, shared space located on the basement level of the school that was only able to serve limited food options due to space constraints and lack of kitchen equipment. While, as stated above, Community is positioned to provide rich food experiences to students who can leave campus for lunch, students who are receiving a free or reduced lunch are often not able to afford these more costly restaurant options. Low-income students made up the vast majority of individuals accessing food through the cafeteria, ultimately creating a stigmatizing experience.

The school administration and faculty were aware of these challenges and were working actively to make positive change. In partnership with their food service provider, Chartwells, Community was planning a major cafeteria renovation project and wanted assistance gathering insights from students and staff that would help inform how students could be involved in the design and functioning of the space. In October 2019, the School Principal invited us to conduct a small research project with a specific focus on how to include peer-to-peer food-related education in the new space. The research was conducted with a group of 46 students enrolled in either the Personal Fitness or Health courses and several staff members. The project consisted of several research activities including:

- 1) One hour long semi-structured interviews with staff
- 2) A student packet containing a week-long food diary, a survey, and two creative activities

Method: Interviews

Staff, which included the school Principal, a teacher, and a school nutritionist, were asked a series of questions in two categories: Cafeteria/Food, and Student Involvement.

Cafeteria/Food

- 1) What sort of education are students currently getting about making healthy and sustainable food choices?
- 2) What other information, if any, would you like to see students learning?
- 3) What do you see as some of the challenges that prevent students from making healthy, sustainable food choices?
- 4) If you were to design the ideal cafeteria, what would it look like? What would it include?
- 5) What would you like to see in your current cafeteria?

Student Involvement

- 1) In the past, how have students participated in peer-to-peer education? What things do you feel have worked really well or not so well?
- 2) What is your current process for allowing students to display their artwork or other materials at the school?

3) When students are able to display their work in the school, what have you seen be really successful? What gets the students excited?

Key Insights:

Theme #1 Positive School Food Experiences

Staff felt passionate about creating a positive school food experience for students.

Barriers to creating these positive experiences included space and budget constraints, a desire to maintain contacts with cafeteria staff members despite negative relationships with students, and a lack of personal experience with the cafeteria.

Staff emphasized the need to address the stigmatization of students eating lunch from the cafeteria but making the space welcoming to all students and diversifying the food options available.

Theme #2 Student Involvement Process

Students enjoyed having a process in place for creating both visual and educational materials for their peers in the form of murals, posters, and presentations.

This process was most successful when it was student-initiated and student-led but was supported by a school “sponsor” (usually a teacher or forum leader).

Method: Diary Studies

Food Diaries were distributed to students by their teacher on Monday and returned that Friday (Figure 10). For each of the five school days, students were asked to:

- 1) Record what they ate for lunch and why they chose it
- 2) Say if they ate their lunch in the school cafeteria
- 3) Circle an emoticon illustrating how they felt about their lunch that day

Day 1	Day 3
Today for lunch I had: <u>Bagel + Cream cheese</u>	Today for lunch I had: <u>Bagel + Cream cheese and a lunch bar</u>
I choose to eat this because: <u>its easy/cheap/ I like it. I had some money to spare.</u>	I choose to eat this because: <u>my sister brought some breads and I used 50¢ for the cream cheese</u>
I ate my lunch in the Community High School Cafeteria: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	I ate my lunch in the Community High School Cafeteria: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Circle the emoticon that represents how you felt about lunch today: 	Circle the emoticon that represents how you felt about lunch today: 
Day 2	Day 4
Today for lunch I had: <u>a lunch bar + muffin</u>	Today for lunch I had: <u>chicken</u>
I choose to eat this because: <u>I had no money so I brought a few things from home</u>	I choose to eat this because: <u>I was able to pack it the night before</u>
I ate my lunch in the Community High School Cafeteria: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	I ate my lunch in the Community High School Cafeteria: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Circle the emoticon that represents how you felt about lunch today: 	Circle the emoticon that represents how you felt about lunch today: 

Figure 10. A student food diary

Key Insights:

Many students cited “lack of time” during their lunch period as a reason why they were unable to eat the lunch they wanted.

Students who were vegetarian or vegan and received their lunch from the cafeteria felt negatively about their limited options.

Students who forgot either money or food from home often ended up eating nothing for lunch.

Method: Surveys

Student surveys and creative brainstorming exercises were completed during a single class period and collected by their teacher. The surveys asked a series of questions with the goal of gauging student’s general knowledge and sentiments about food, their personal sense of empowerment related to food choices, and their interests related to continued food education. These questions were:

- 1) In your own words, how would you define healthy food? How would you define environmentally sustainable food?
- 2) Do your food choices have an impact on a local scale? What about a global scale? Why?
- 3) How do you choose what to eat?
- 4) Where do you learn about food? Does what you learn influence what you choose to eat?
- 5) What would you want your peers to know about the food they eat?
- 6) Would you like to learn more about how to make healthy, sustainable food choices? If yes, what sort of things would you like to learn more about?

The data from the surveys were analyzed to identify key insights.

Key Insights:

Student Interest in Food Issues and Food Choice

Students did feel that their food choices had an impact, particularly on a local scale.

Students were interested in learning more about food and in educating their peers, especially when it pertained to health and environmental issues.

Students wanted access to affordable and environmentally sustainable food.

“Yes, my food choices affect the economy and environment. Buying food locally helps the community. Buying unethical or wasteful products can harm the environment on a global scale.”

“I would want other students to know if their food is edible, healthy, nutritious.”

	A	B	C	D	E	F	G	H
1	Student Survey							
2		Did the student know what sustainable food meant?	Did the student know what healthy food meant?	Question #2) Do your food choices have impact?	Question #3) How do you choose what to eat?	Question #4) Where do you learn about food? Does this influence your food choices?	Question #5) What would you want your peers to know?	Question #6) Would you like to learn more? What would you like to learn about?
3	Healthy food is food that benefits your body's long term health. Sustainable food is food that can give you energy throughout the day.	Yes	Yes	Yes - locally if you buy local	My tummy tells me, or what is convenient	Cookbooks. Yes, I eat what's fun to cook	I don't know	Yes. Easy to cook things
4	NA	NA	NA	Yes - has a local impact by buying locally at grocery stores and farmers market	Convenience and cost - tries to make balanced meals with veggies and protein	Find recipes on the internet or learns from people at work, looks at Sparrow Market	Wishes people would eat less meat, especially red meat and buy local organic produce	Yes. Wants to learn how to make cheap and efficient meals using local produce
5	Healthy food is food that is going to give you enough energy for the day and is good for your body. Sustainable food is food that is either not impacting the earth or impacting in a good way.	Yes	Yes	Yes - small local impact by shopping locally	Time and money, home made lunch vs. buying one	From either class, internet or family	Would want them to know how their food is going to give them energy how much and for how long.	Yes. What food are more sustainable and where to buy them
6	Health food is natural food with low/negligible added sugar or fats. Foods that fuel you instead of zapping energy and do not negatively affect your health. Sustainable food is food that does not add to climate change and has low water and energy use. Foods that must be transported are not sustainable.	Yes	Yes	Yes - making local impact by supporting local farmers, and eating locally can impact the global scale by helping the climate.	Choose foods with little or no sugar that are good for me. Organic and local food.	Learns about food through job at local market	The negative health impacts of sugar and the benefits of buying local food	Negative health impacts of food
7	healthy - unprocessed with little to no sugar, trans fats, high fructose corn syrup etc. All foods can be sustainable.	Yes	Yes	Yes. Little locally and not locally	Food that I like	From other class	Don't sacrifice your food choices for the environment. Most climate change is caused by the 1% not your average citizen	

Figure 11. Student survey data

Method: Future-casting

All participating students were offered two options for the creative brainstorming activity and asked to complete one. The options were:

CREATIVE PROMPT #1: DESIGNING THE IDEAL CAFETERIA

Congrats! You have just been hired as the lead designer for an important project. The client would like you to design the ideal cafeteria for their high school. They have an unlimited budget for the project, and just want to make sure their students have the best cafeteria possible. They have asked that this cafeteria include some way to educate students about making healthy food choices. Please use the space below to draw out plans for this ideal cafeteria and use the lined area to write notes about your design.

CREATIVE PROMPT #2: TEACHING ANOTHER STUDENT

Today a new student arrived at your school from a foreign country, and they do not speak very much English. They seem to be unfamiliar with the food choices that are available to them and are asking you for help deciding what they should eat. Use a combination of images,

drawings, and/or writing to teach them how to decide what to eat. Some questions to keep in mind is how you will tell this student which foods are healthy, which foods are better for the environment, which foods you can get near the school, etc. This could be in the form of a comic strip, a sign, or anything else you can imagine!

Despite having multiple options, all students chose to complete Creative Prompt #1: Designing the Ideal Cafeteria. Student responses were drawings of varying degrees of detail depicting their ideas for an ideal cafeteria (Figure 12-14). These were analyzed to reveal common

themes that students wanted to see reflected in their cafeteria:

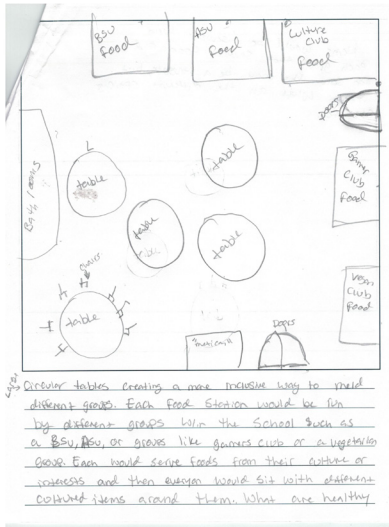


Figure 12. Student ideal cafeteria

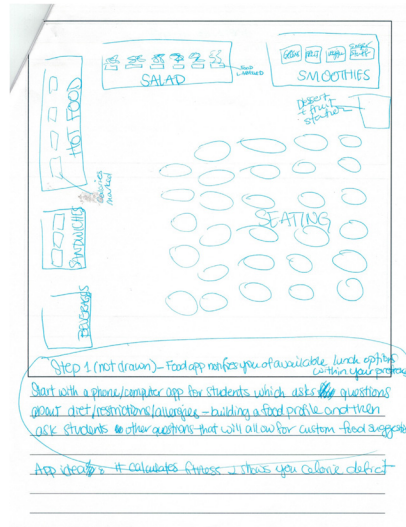


Figure 13. Student ideal cafeteria

More options for fresh fruit and veggies

- Salad bar / fruit station
- Smoothie bar

Increased food diversity

- Lots of choices
- Rotating food options
- Foods from different cultures such as Mexican, Indian, or Japanese cuisine

Support social interactions

- Round tables to encourage conversations

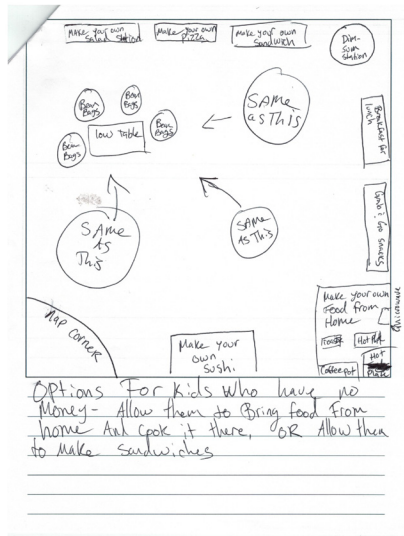


Figure 14. Student ideal cafeteria

- Ways for students from different cultural groups to learn about each other through food

Focus on health and nutrition

- Make healthy choices prominent and convenient
- Food labeling with calories and nutrition facts (including how different nutrients or food impact the body)
- Support building appropriate meals based on age, gender, activity level, etc.

Equity

- Area for students to prep food they brought from home
- Affordable food options
- Seating for all students
- Diet inclusive food options

Education

- App to help students learn about their food and what choices are available
- Screens/banners/wall art with food information
- Balanced, healthy diet suggestions

Key Insights:

Students are thinking about complex issues related to equity, health, and education.

Students had innovative ideas for improving their cafeteria that were not being incorporated into decision-making.

After analysis to identify major themes and key insights, data from this initial research were visualized and compiled into a report (Figure 15) that was given to the Community High School Principal. The report also detailed recommendations for continued student-focused improvements in the cafeteria. Of these recommendations, one was identified to serve as the jumping-off point for continued research:

Add design opportunities for students

Students were able to share an incredible range of creative ideas for their cafeteria in just the short brainstorming activity they completed in class. Creating design opportunities within the cafeteria could be a great way to engage students in creative and critical thinking and well as potentially help identify solutions that the school could incorporate.

Inspire: Define

Summer 2020

Methods: Contextual Review, Interviews, Systems Mapping, Stakeholder Mapping

Method: Stakeholder Mapping

After completing the explore phase, a second contextual review was conducted to gain a deeper understanding of the role of student voice in cafeterias. As previously stated, this revealed research supporting the need for increased inclusion of student voice in cafeterias and the school setting as a whole. In addition, semi-structured interviews were conducted with stakeholders in the education and cafeteria space, with a focus on individuals making large-scale decisions (e.g., State of Michigan Department of Education). These interviews were combined with insights gained from the contextual review and data from the

What do students want to learn more about related to food?



What do students want their peers to know about food?

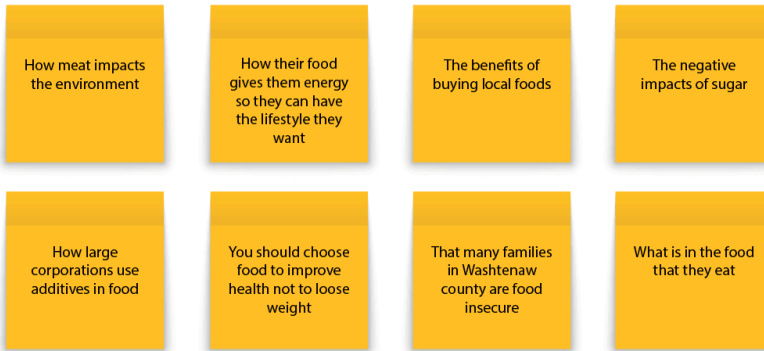


Figure 15. Community High School report excerpt

initial exploration phase to create a stakeholder map. Stakeholder mapping is a technique for understanding complex relationships between individuals or groups involved in the design process. In this map, a layer of “attitudinal barriers” was added to explore what sentiments may exist that negatively impact collaboration and communication. (Figure 16).

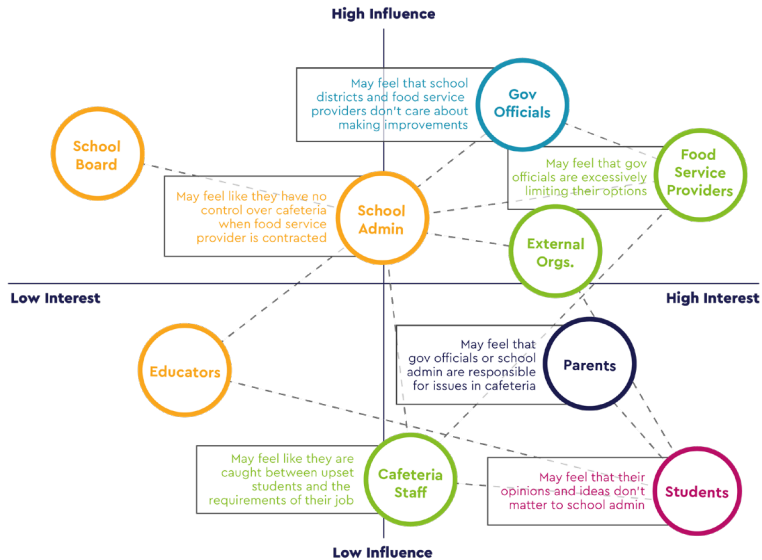


Figure 16. Stakeholder map with attitudinal barriers

Method: Systems Mapping

It became clear as research progressed that talking about cafeterias on a systems level is challenging. Those who did not interact with them on a daily basis or who interacted with them at a more granular level (e.g., food servers) often thought about cafeterias in two ways, either simply a room where students ate or the food that was served there. It was difficult to have big-picture discussions that included aspects of education, policy, food sovereignty, etc. from this limited perspective. A visual systems map (Figure 17) was created to capture the complexity and interconnectivity of a school cafeteria and encourage collaborators to engage in systems thinking. Systems thinking is defined by Sedlacko as a “framework for holistic thinking while addressing complex societal issues” that helps make “sense of interrelationships between system components to understand what drives the dynamic behaviour of the system” (Sedlacko 2014). This visual was used as a tool in the research

and later in the final platform to quickly spark deeper discussions and to convey the diversity of areas in which students can envision cafeteria futures. Here the cafeteria system is broken into four areas: plate, place, people, and policy. In each of these areas are the main stakeholders or decision-makers, and at the center are the students themselves. This visual is not intended to be comprehensive, but to serve as a tool for starting discussions, positioning students as central stakeholders, and quickly conveying the complexity and overlaps in different cafeteria systems.

From these activities, a clear challenge and three research questions were identified:

The current school cafeteria system places value on cost and efficiency over student, community, and environmental well-being. This is reflected by the ongoing challenges in all areas of cafeteria

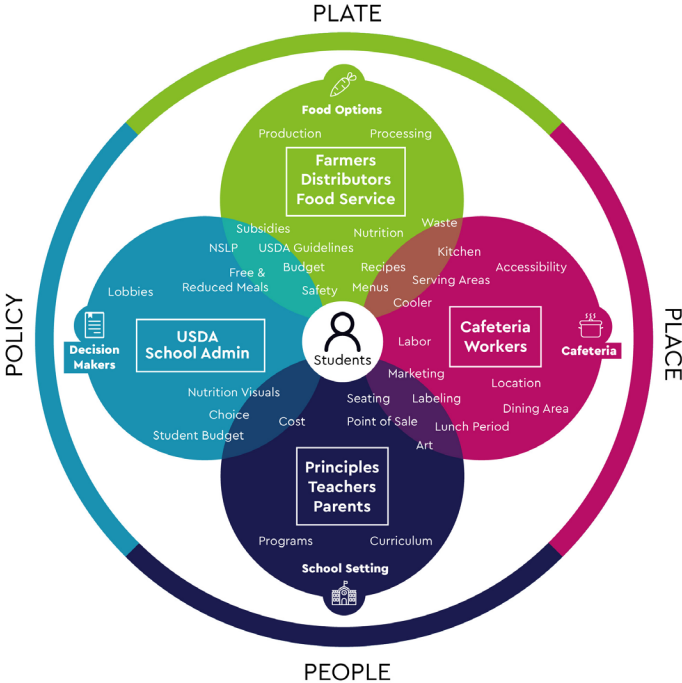


Figure 17. Cafeteria systems map

systems including poor food quality, stigmatization of students, disconnects with educational goals, and negative environmental impact. Despite being the main stakeholders in school cafeterias, students' voices and agency are only being considered peripherally or removed entirely. This impedes the sustainable and equitable reformation and development of these spaces and removes opportunities for students to gain important skills, attitudes, and knowledge as 21st century citizens. To address this, this research seeks to explore three questions:

- What are student goals for the future development of cafeterias?
- How can high school students become an active voice in designing the equitable and sustainable cafeteria of the future?
- How can this design process be empowering so that students view themselves as active change agents in their food systems?

Ideate: Discover

Summer 2020

Methods: Table of Collaboration, Design Workshops, Interviews, Scenarios, Future-casting, Systems Mapping

In the discover phase, a stakeholder map and table of collaboration were created to inform who should be “at the table” during this stage of the research.

Method: Table of Collaboration

Stakeholders from each “seat” on the table of collaboration were identified to participate in research activities. Categories of decision-makers are listed along the sides of the table with students at the center. The number of participants in each category is indicated in

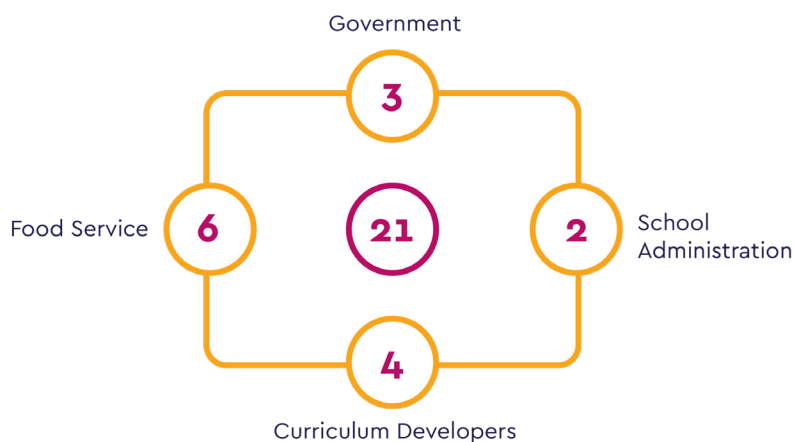


Figure 18. Table of Collaboration with the number of stakeholders from each category that participated in the research activities

Figure 18.

Method: Interviews

One hour semi-structured interviews were conducted with decision-makers, and key insights were identified for each of the four groups.

Food Service

- Individuals involved in food service have a vested interest in creating positive food experiences for students both ideologically and for profit.
- They are constrained by district budgets, staff knowledge, and disconnects between school administration and food service providers.
- Their ability to provide nutrient-dense, scratch-cooked meals is limited by a lack of kitchen equipment, COVID-19, and by strict national guidelines including sodium and calorie limits.
- They want student feedback and involvement but are not

always sure how to engage students.

- COVID-19 has forced food service providers to explore new ways to engage with students due to external meal pickups. (e.g., online content, surveys)

Food Curriculum Developers

- Curriculum developers saw many opportunities to connect food with other curricula, especially science and history courses.
- Curriculum at the high school level provides extra challenges because of the increasing requirements and variation in cafeterias from school to school.
- They believe food curricula should be connected to existing national standards like Common Core.
- They emphasized the Project-Based Learning framework for connecting educational goals and cafeteria improvements

Government

- Government employees must follow national guidelines for programs like the NSLP and are not able to make exceptions for single schools or districts.
- Policy change happens when individuals understand the existing policies and constraints and can lobby accordingly.
- The cafeteria space is a current area of focus for change and improvement and is critical for student education and development.

“[The cafeteria] is absolutely critical. And you can tell when there are administrators that get it and those who don’t.”

- One government official expressed her struggles with a

parent group trying to set up a program to donate unclaimed milk from reimbursable lunches to a food rescue organization:

“My job is to make sure that we follow the critical nature of what these federal programs are for, and while my bleeding heart wants to make sure that the food goes to the food rescue organization, I can’t let that be my reason for making decisions about these federal programs.... My job is to follow those federal regulations.”

School Administration

- School administrators expressed that the decision-making process is currently very separated from students.
- They may feel like they don’t have much control over the cafeteria space, especially when they use a contract food service provider.
- Their level of personal interest in food, health, and nutrition is reflected in the cafeteria space and length of lunch, as well as their relationship with the food service provider.

Cultural Probe Workshop

Problem Statement
Student values are not being used as a tool to guide cafeteria development towards a more equitable, sustainable future.

Success Metrics/Statements
How metrics measured because the has no way to share her thoughts or push for change on issues she sees within her cafeteria.

Project Goals
1) Engage high schoolers to act as designers in food systems
2) Identify values for future cafeteria redesign
3) Share vision with school leaders to help set goals and guide development

Probe Question
What are student values for their cafeteria? How have these changed during COVID?

Probe Object 1: Journey

Map 1a - How did you access food at school before COVID-19?
Draw a map of how you access food and how you choose what to eat at school, starting from when you first arrive to when you leave. Make sure to include a label or description at each "stop" on your map.

Map 1b - How do you access food during the school day during COVID-19?
Draw a map of how you access food and how you choose what to eat during the school day. Be full. Start from your first meal and end the map when your school activities finish. Make sure to include a label or description at each "stop" on your map.

Identify
Are there areas on your map that you like or dislike? Is there something you want to change? Mark those areas with the corresponding icon below and write a note about why you marked them.

Like (Blue square) Dislike (Red circle) Change (Yellow star)

Probe Object 2: STEEP Analysis (Graphic novel narrative style)

Student tasked to act as a designer and design their future cafeteria

Task 1: Inspire

Task 2: Research

Task 3: Ideate

Task 4: Present

Task 5: Reflect

Task 6: Social

Task 7: Present

Task 8: Reflect

Probe Object 3: Follow Tweet

Say It in a Tweet
Imagine you had one tweet (140 characters) and a chance to tell decision makers what you care about most in your cafeteria. What would it say? How would it make you feel?

Create your tweet in the space to the right.

Figure 19. Student workshop ideation

Method: Co-Creation Workshop

We designed, tested, and piloted a student co-create workshop with a cohort of 21 high school students. Students participated individually or in small groups in a facilitated design workshop conducted over Zoom and a creative platform called Mural. They were recruited through Facebook posts and the Michigan Department of Health and Human Services newsletter. The workshop was broken into two sections:

- 1) A 30 minute semi-structured interview
- 2) A future-casting activity

Interviews

During the semi-structured interviews, students were asked questions about their school food experiences and personal sentiments related to food.

- 1) Where did you eat lunch at school before COVID?
- 2) How would you decide what to eat?
- 3) How would you decide who you eat with?
- 4) Are there any foods you wish you could eat more or less of?
- 5) What is your favorite thing about your cafeteria? What is your least favorite thing about your cafeteria?
- 6) What were your interactions with staff? Did you have any particularly positive or negative experiences?
- 7) How was your feedback incorporated?
- 8) What do you learn about food in your classes?
- 9) Are there other ways you learn about food?
- 10) Are there any issues around food that you are particularly passionate about?

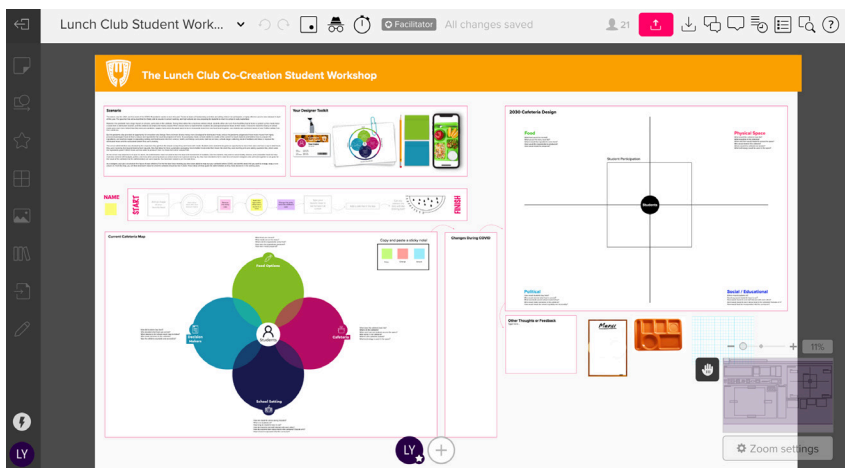


Figure 20. Co-Creation Workshop Mural board

11) Describe your ideal school lunch? What would the food be? The environment?

Scenarios

After completion of the interviews, students were given a link to a Mural board (Figure 20). After being introduced to the Mural board, they were read a short future scenario positioning them as designers and emphasizing the importance of their voice in a hypothetical school's decision-making process. The scenario was written using stories and information collected during interviews with decision-makers.

The date is July 3rd, 2021, and the worst of the COVID-19 pandemic seems to be in the past. Thanks to teams of hardworking scientists and willing clinical trial participants, an effective vaccine was released early this year and distributed throughout the state of Michigan. The governor has announced that it is finally safe to resume in-person learning, and high schools are now preparing to return to normal activities in early September.

However, the pandemic had a large impact on schools,

particularly in the cafeteria. For schools that switched to virtual learning, their cafeterias sat empty and mostly unused, and school meals were distributed to families from pickup locations. For those that continued to meet in-person, food selections for students eating school meals became even more limited and relied heavily on packaged pre-prepared and often cold foods. Throughout the state, supply chains were disrupted, plans to try to incorporate more fresh and local food forgotten, and districts saw combined losses of over 1 billion dollars from their cafeterias.

But the pandemic also provided an opportunity for innovation and change. Schools began developing online content, teaching students how to cook and even grow their own ingredients during times when school options were limited. Food service providers designed new and diverse menus that featured fresh ingredients, teachers began incorporating cooking and food lessons into their science, health, and history curriculums, and policy makers turned their attention towards cafeterias and food programs. Last but not least, schools began collecting student feedback and ideas so that they could continue improving these new developments.

The school administration was shocked by the feedback they got. Students were excited to be given an opportunity to share their voice and have a say in what they were eating. They had incredible ideas for improving meals and were asking questions like where were these ingredients produced? Who decides what goes into my meals? Can I try foods from other cultures?

As schools now prepare to return to normal activities, the administration does not want to lose the input and involvement of students. Like the students, they want to serve plenty of healthy, diverse, and sustainable foods but they must also contend with budgets, politics, and many other pressing issues.

So, they have decided to form a task force of student designers who will work together to set goals for the future of the cafeteria that the administration can work towards. You have been asked to join this task force.

As a designer, your job is to envision the future of your cafeteria. For the first task force meeting, you have been asked to map out your cafeteria before COVID-19 and identify areas that you want to change, keep, or are unsure of. From this map, you will then brainstorm ideas for what the cafeteria should be like in 2030. These ideas will help guide the administration as they make decisions in the coming years and play a critical role in creating the change that you want to see.

After the scenario was read, students were given a digital “designer toolkit,” which included an ID badge, sticky notes, a pencil, the cafeteria systems map, and a smartphone. The facilitator related these images of physical tools features on the mural platform that they could access (Figure 21).

Next, they were guided through a brief “obstacle course” to familiarize them with the features of the Mural platform. They were then invited to begin the future-casting activity.

Systems Mapping: Current Cafeteria Map

As stated in the scenario, students were first asked to map their current cafeteria using the four different areas: plate, place, policy, and people. As they mapped, students were asked to identify things that they liked, disliked, or were unsure of using a basic color-coding system. This activity was intended to help students visualize their present cafeteria system before they envisioned what a future one could look like. (Figure 22-23)



Figure 21. Designer toolkit in Mural

Future-casting: 2030 Cafeteria Map

Lastly, students were asked to describe or visualize what they thought the sustainable and equitable cafeteria of the future should be like for each of the four cafeteria areas. These design futures were framed as recommendations that their school administration would use to guide the development of the cafeteria space. As they filled out the board, they were prompted to ideate ways that students could act as leaders in making the changes they wanted to see. Students were encouraged to continue working on their board after they left the Zoom call (Figure 24-25).

After the workshop, all students were sent a digital certificate thanking them for their participation.

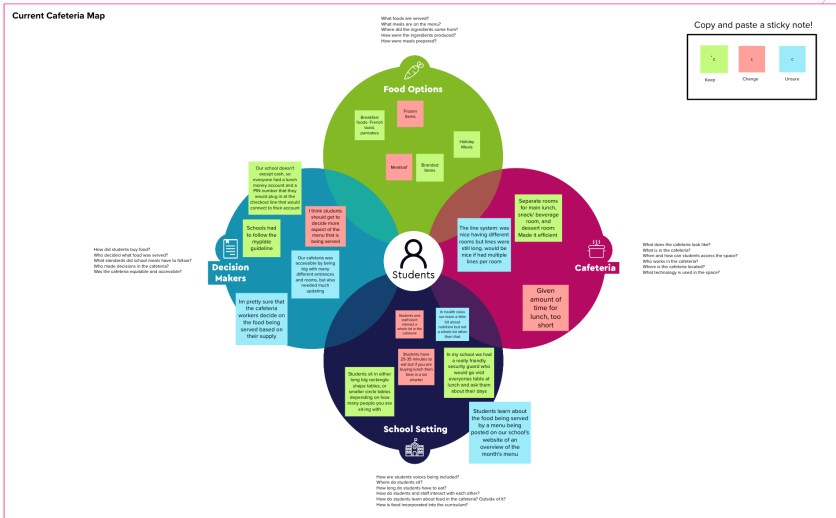


Figure 22. Examples of student cafeteria maps

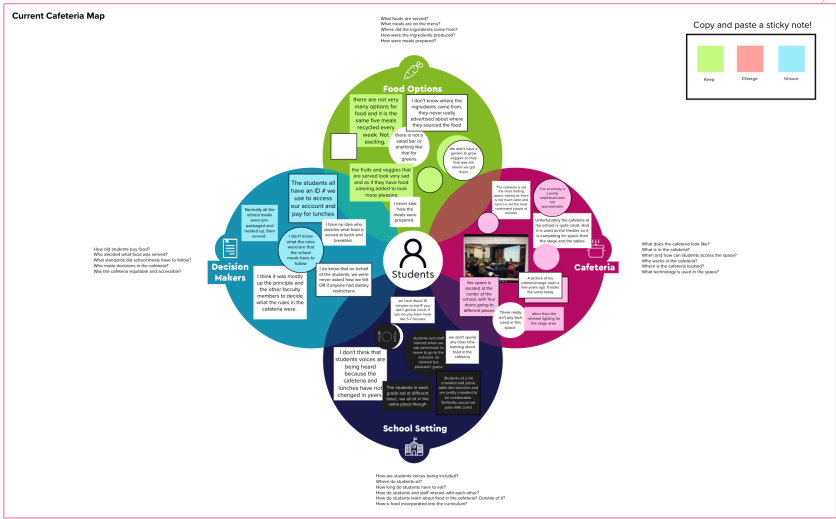


Figure 23. Examples of student cafeteria maps



Figure 24. Example of student 2030 cafeteria maps

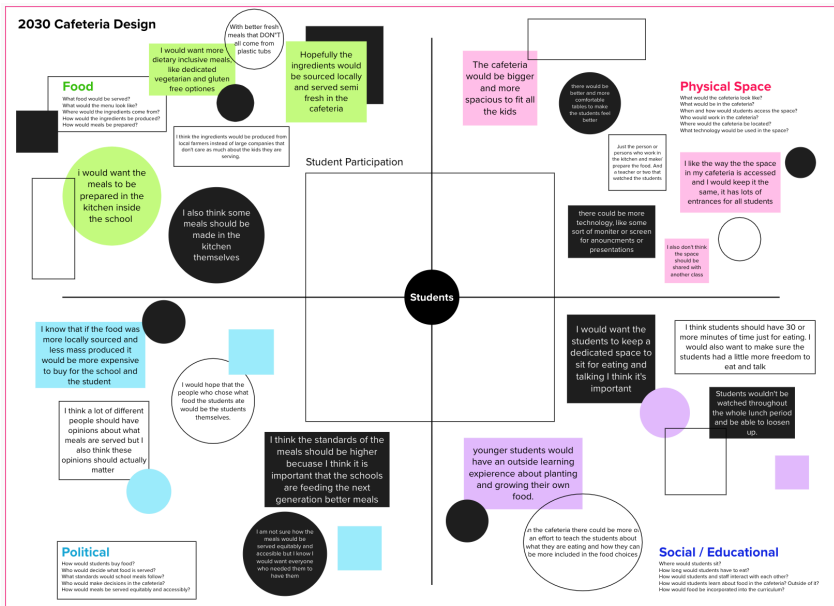


Figure 25. Example of student 2030 cafeteria maps

Ideate: Prototype

Winter 2020

Methods: Wireframing, Affinity Mapping, Prototyping, Design Principles, Branding

Method: Affinity Mapping

Student Generated Goals

Affinity mapping was used to address our first research question: what are student goals for the future development of cafeterias? Affinity mapping is a technique used to gather ideas and insights from large data sets, in this case, generated by students during the Co-creation workshops. Each element from students' 2030 cafeteria maps was written down individually on sticky notes and then first organized into the four cafeteria areas (Figure 26). Then elements were grouped together around common themes (e.g., more vegan and vegetarian-friendly food options, chefs rather than “lunch ladies,” longer lunch periods). Each of these themes was translated to an aspirational goal for future cafeteria development. The final goals are discussed in more detail under the *Design Outcomes* section.

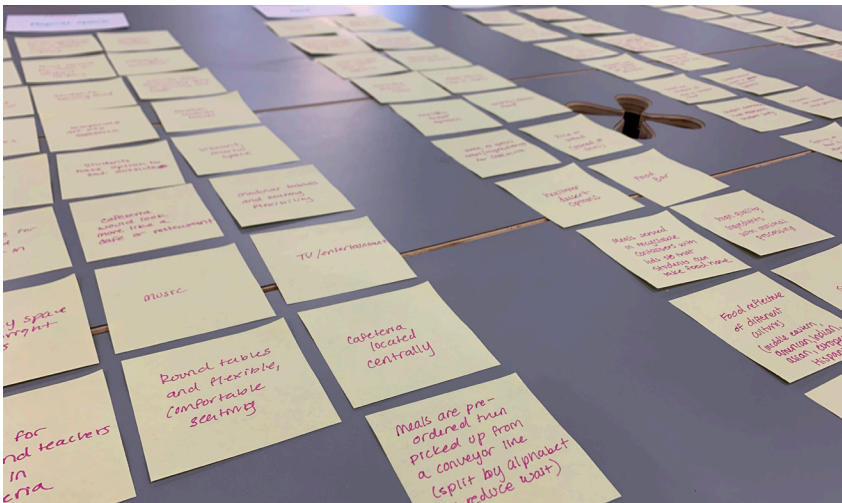


Figure 26. Affinity mapping with student ideas

Method: Design Principles

The Lunch Club Platform

At the start of the ideation phase, we returned to our second and third research questions:

- 1) How can high school students become an active voice in designing the equitable and sustainable cafeteria of the future?
- 2) How can this design process be empowering so that students view themselves as active change agents in their food systems?

Several important insights were highlighted:

- Students wanted to be able to engage with the design process on an ongoing basis, not just in a single workshop.
- All previous examples of cafeteria and empowerment programs relied on a skilled facilitator and could not occur asynchronously or in a hybrid (partially online) format. This meant that existing programs shut down during COVID-19.
- Real change occurred when students acted as catalysts within their school by connecting different key stakeholders together and sharing their thoughts and options in a clear and constructive way.
- Project-Based Learning is a proven framework for creating empowering and meaningful learning opportunities for students while creating change within the cafeteria space, but it required ongoing structure and support for students and educators.

Based on these insights, we planned to build an online platform that would use design frameworks to guide students through the process of identifying, co-creating, and sharing their visions for equitable and sustainable change in their cafeterias.

Platform Design Principles

Empowering

The platform should empower students by 1) positioning students as designers with the power to make change in their cafeteria (intrapersonal empowerment), 2) providing the tools and structure for them to understand how their cafeteria systems function (interactional empowerment), and 3) engaging them in activities that teach them how they can make change within the cafeteria (YES Curriculum 2017, pp. 10). Student empowerment is evaluated at the start of the process with a pre-survey, during the process at a check-in meeting, and after the process with a post-survey.

Flexible Structure

The platform should provide a structure that guides students through the design process without influencing what their design visions will be. Students have a variety of different interests, from food to waste to education, and they should be encouraged to explore their own passions in relation to the cafeteria.

Accessible

The platform should be free and only require a basic internet connection for access. Students should not need any prior knowledge of food, food systems, or design to engage with the platform. In addition, the platform should provide information and tools to educators, schools and policy makers to help them include student voice in their decision-making processes.

Relevant

That platform should help students build skills, knowledge, and attitudes through interactions within their own context and allow them to focus on projects that are particularly meaningful to them.

Relationship and Community Building

The platform should support and strengthen the building of positive relationships within the school environment.

Method: Branding

The Lunch Club Platform

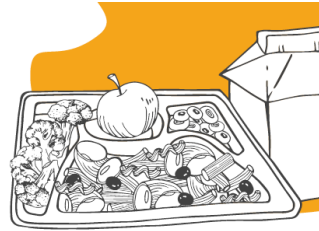
With the decision to create a public online platform, it became necessary to establish a clear and cohesive brand identity. Through several rounds of sketching and ideation, a name, logo, and color palette (Figure 27) were developed. The name, “The Lunch Club,” was chosen as a play on John Hughes critically acclaimed 1985 film “The Breakfast Club,” where a group of high school students overcome stereotypes and push back against their school administration during all-day detention. In addition, an icon set designed to help visually identify the four cafeteria areas and is used throughout the platform and other design outcomes (Figure 29).



Figure 27. Color palette and logo



The Lunch Club



A platform to enable students to express their visions for school cafeterias through design

The Goal

To leverage the experience and creative powers of high school students to design the future of school cafeterias.

The Challenge

School cafeterias represent the largest point of access to food in our school systems, and are a critical part of the future of our food systems. High schoolers in particular are at a developmental milestone where they are building identities around food that are separate from that of their parents and guardians, and exploring ways to express their voice.

Cafeterias should be equitable spaces where students of all identities can feel equally valued, feel empowered to engage actively in their food system, and eat food that preserves their planet and supports their health. However, many of our school cafeterias are failing to do this.

To address this, we want to empower students to design the equitable, sustainable, and healthy cafeteria space of the future.

The Platform

The Lunch Club platform uses a speculative design and project based learning framework to guide students through exploring their cafeteria space and envisioning the future of these spaces at the intersection of health, equity, and sustainability. Throughout the process, students take on the role of designer and utilize design methods and tools.

Development Timeline

Research and Data Collection SEPT – DEC 2020

Interviews and design workshops with key stakeholders including high school students, curriculum designers, and decision makers.

Platform Design and Build JAN – MAR 2021

Build web-based project platform using research insights and stakeholder input.

Testing and Evaluation APRIL – JULY 2021

Test platform with stakeholders to identify areas for improvement.

laryoung@umich.edu



Figure 28. The Lunch Club informational one-pager



Figure 29. The Lunch Club icon set

Method: Wireframing

The Lunch Club Platform

Wireframing is a method for designing the structure and content layout for websites or other digital platforms. In this case, wireframing occurred in two stages:

- 1) Platform flow: how students would move through the platform content
- 2) Platform layout: how the platform looked and functioned

Platform Process

Using collected insights, along with the “Our Cafeteria Program,”

and shared with stakeholders for feedback. This went through several iterations before a final process) was identified (Figure 33).

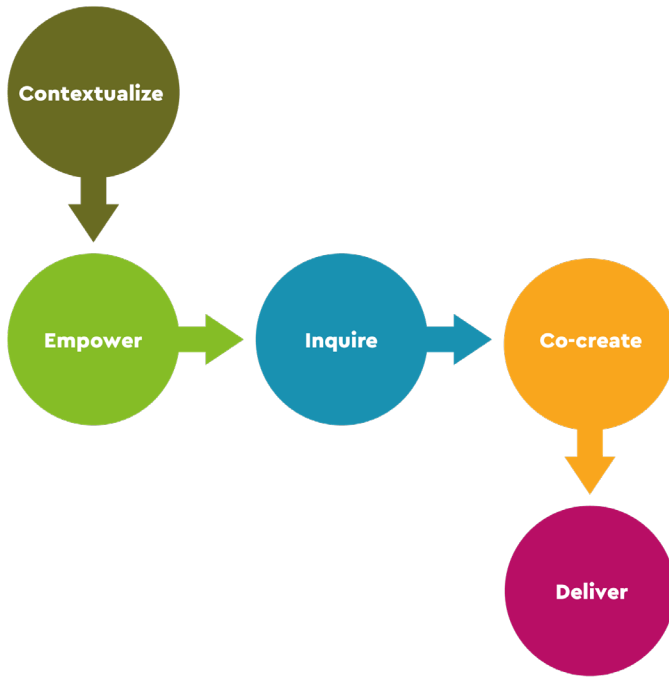


Figure 33. Final platform flow

Platform Layout

With an outline of platform flow in place, low-fidelity wireframes were created of the platform's layout and visual design (Figure 34).

High-fidelity wireframes were then built in Wordpress, which would serve as templates for various pages.

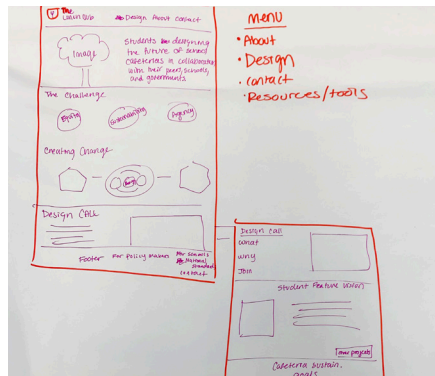


Figure 34. Lo-fi platform wireframes

Welcome, designer!
We're glad you're here.

You are a change agent, who is helping to create a better future for the next generations of students, the food system, and the planet. Your voice is important, and the designs you generate will be shared with policy and decision makers.



Contribute your design in 5 steps!



1

Create Your Profile

First Name

Grade

State

School Name

SUBMIT



Thanks for creating your profile!
You are ready to move on to step 2

2

Answer a few questions about you!

Question 1

Question 2

Question 3

Question 4

SUBMIT



Figure 34 and 35. Lo-fi platform wireframes

Method: Prototyping

Toolkit

It became evident during the design of the platform flow that students would need more support at certain stages of the process than could be achieved with traditional written or visual content. To address this, we created a set of tools that would help immerse students in the design process while providing the structure needed for a successful Project-Based Learning experience. These tools form “The Lunch Club Toolkit,” which can be accessed by students through a physical kit they receive in the mail, a printable PDF version, or digitally through the platform.

The Toolkit includes:

- Set of Food Systems Design Terms
- Sponsor Agreement

- Design Values Tool
- Cafeteria Mapping Tool
- Cafeteria Futures Ideation Card Game
- Interview Template
- Survey Template
- Stakeholder Mapping Tool
- Stakeholder Co-Creation Board
- Rubric Template

For each tool, and low-fidelity prototype was created on paper and reviewed before being translated to a high-fidelity digital version. These digital versions were then printed and reviewed again before a final prototype was created. Figure 36-37 shows this prototyping process for the “Stakeholder Co-Creation Board.”

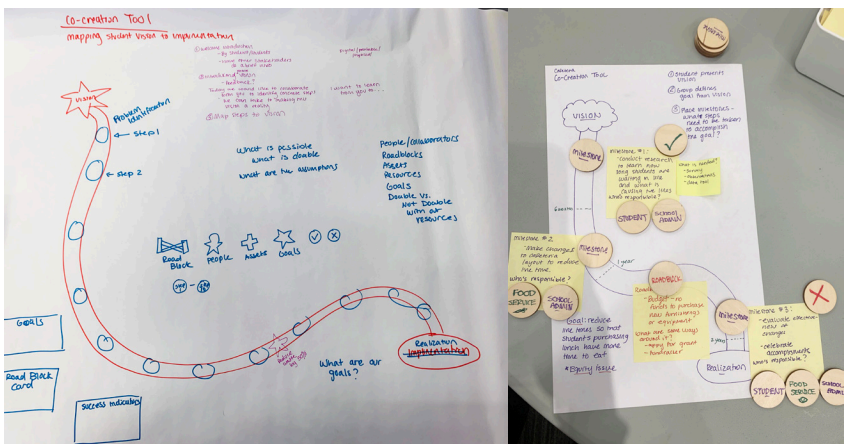


Figure 36. Lo-fi prototypes of Stakeholder Co-Creation Board



Figure 37. Hi-fi prototype of Stakeholder Co-Creation Board



Figure 38. Hi-fi prototype of Cafeteria Futures Game

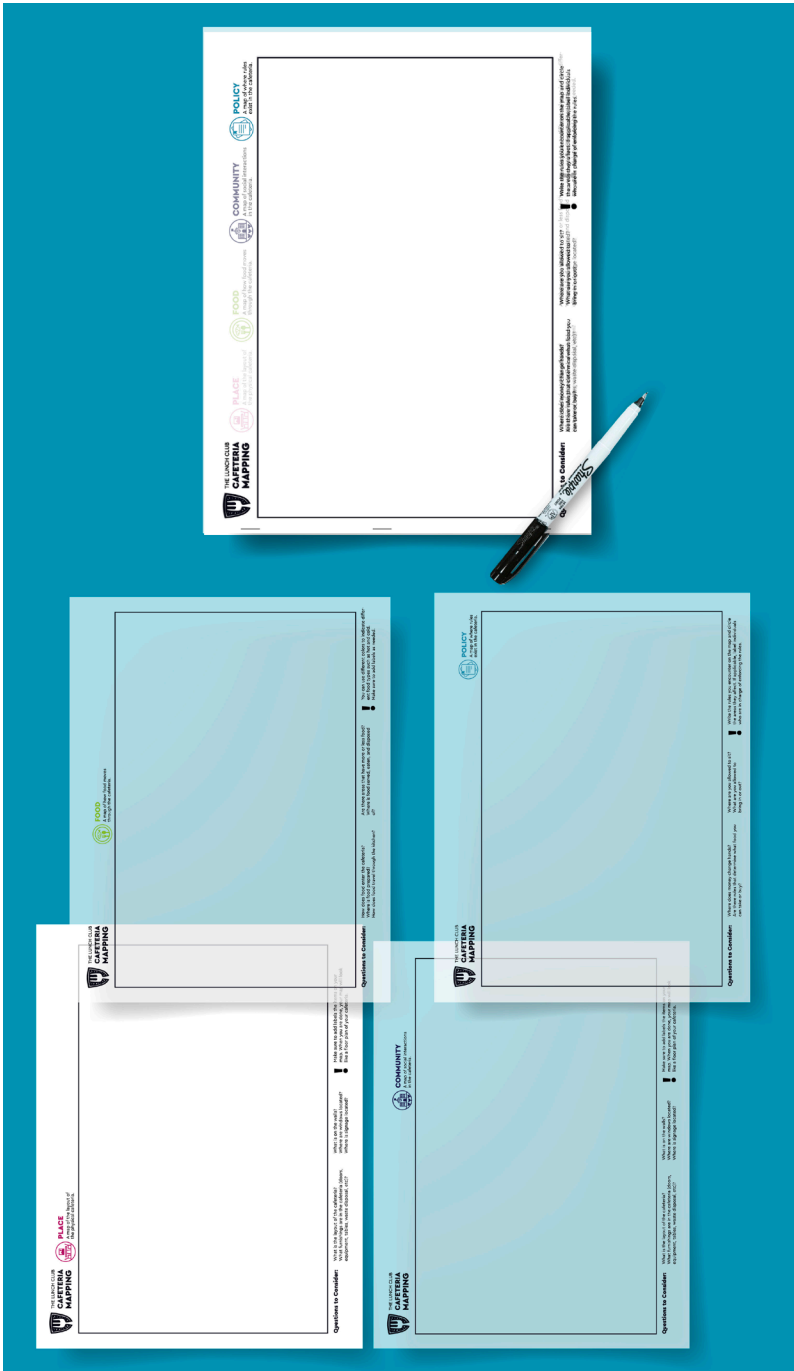


Figure 39. Cafeteria Mapping Tool

Implement: Develop

Winter 2021

Methods: Usability Testing

Once the platform flow, layout, and tools had gone through the initial prototyping phase, the online buildout began following the process outlined in Figure 40. The domain name (lunch-club.org) was purchased and a hosting service selected. Wordpress was chosen for the platform build because of its functional flexibility, ubiquitousness, and ease of use.

The platform process was translated into a series of pages, and a custom Learning Management System (LMS) was added to allow students to track their progress through the platform and easily login or logout using a personal account. Content and features were carefully created and added based on the data collected throughout the reserach process. These elements help make the platform relavent and interactive for students as they are guided through the design process. Quick useability tests were performed at each stage of the platform build to identify potential issues.

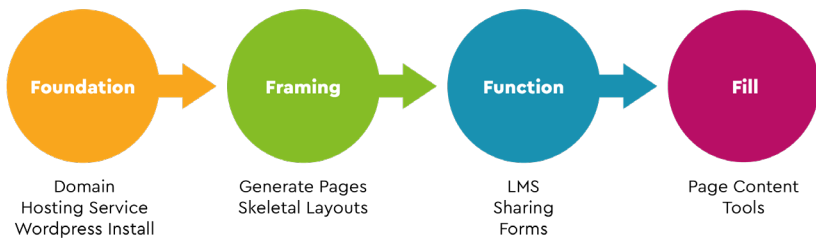


Figure 40. Platform build process

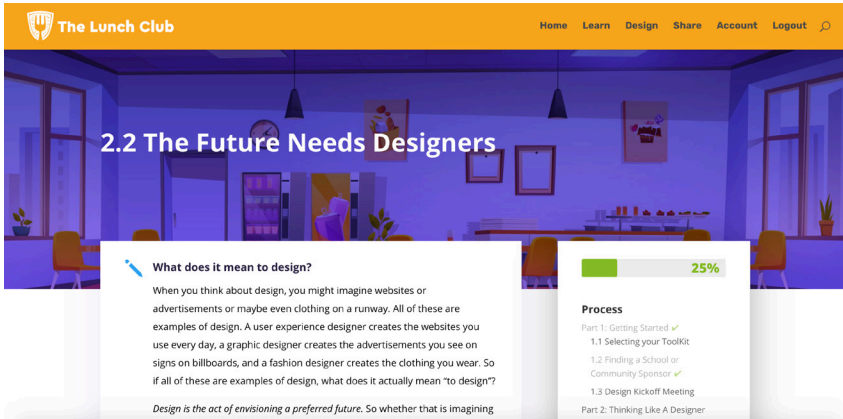


Figure 41. An example of how students are able to track their progress

Implement: Test

Spring 2021

Methods: Usability Testing, Surveys, Interviews

Final testing of the platform is an ongoing process that will continue until the platform is piloted at high schools in the Fall of 2021. In addition, feedback will be collected from students, educators, and policy makers who engage with *The Lunch Club* for the lifespan of the platform. Feedback will be collected using three methods: 1) discussions with students and their sponsors during check-ins, 2) empowerment surveys students complete on the platform, and 3) reflection questions answered by students upon completion of the platform. Continued review and refinement of a platform of this nature are necessary to keep it relevant both from a content and technological standpoint.

DESIGN OUTCOMES

The Sustainable and Equitable Cafeteria

Goals

The Sustainable and Equitable Cafeteria goals are a set of 14 student-generated goals to guide the development of school cafeterias. These goals were identified from the hundreds of ideas submitted by students over the course of the design and research process for *The Lunch Club*.

The goals are divided into four categories representing the four areas (or systems) of the cafeteria: plate, place, policy, and people. While using *The Lunch Club* platform, students choose which cafeteria area and which goal they would like to align with. In addition, the goals are designed to be shared with decision-makers external to the platform. The goals are presented either in a simplified visual format (Figure 42), or as a document containing a more detailed description for each goal (Figure 43-44).

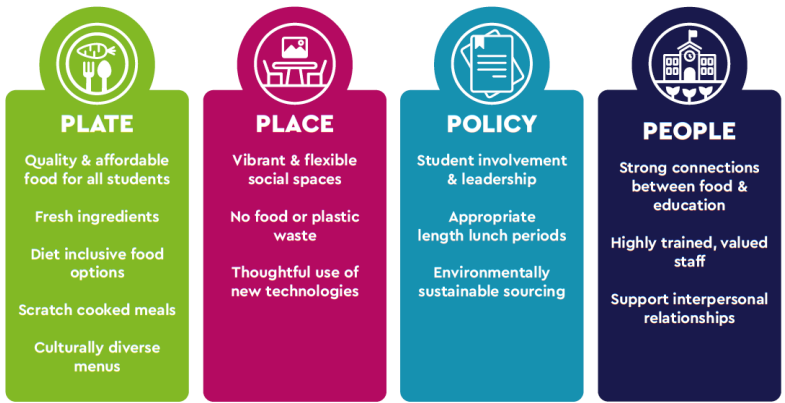


Figure 42. Student-generated cafeteria goals

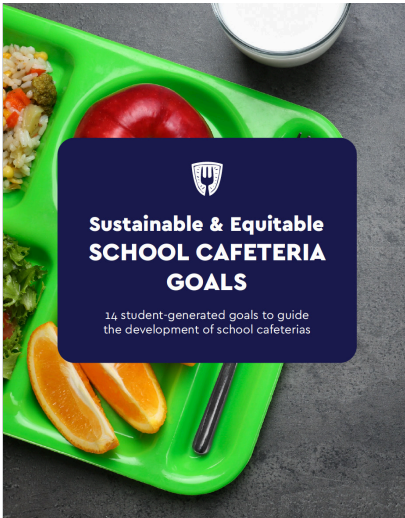


Figure 43. Cafeteria Goals cover

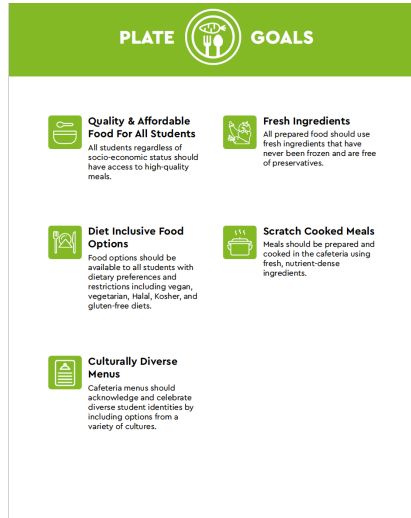


Figure 44. Plate Cafeteria Goals

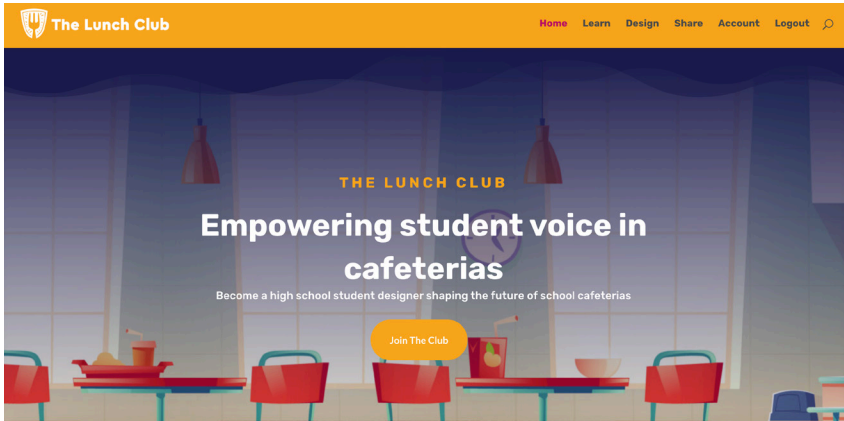


Figure 45. The Lunch Club Home page

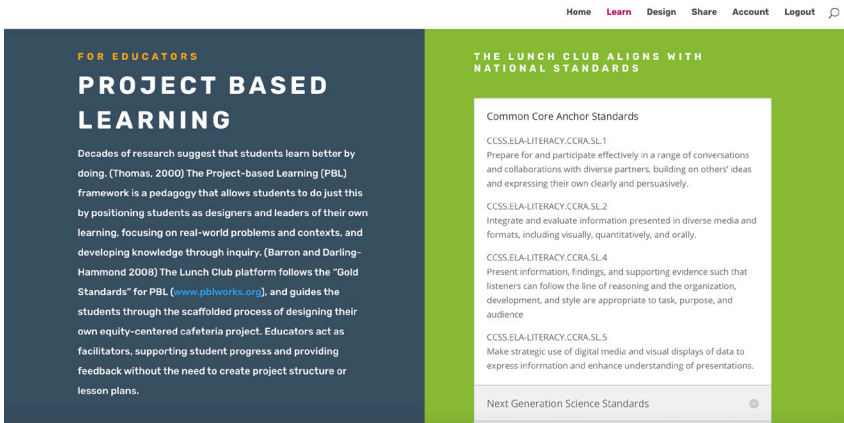


Figure 46. The Lunch Club Learn page (For Educators)

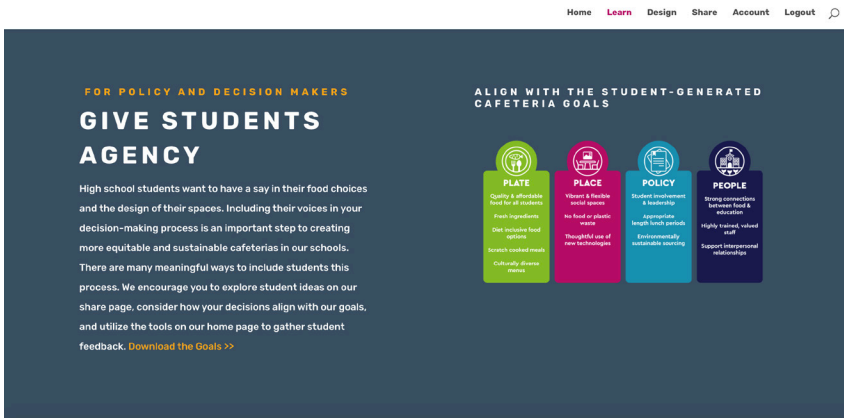


Figure 47. The Lunch Club Learn page (For Policy and Decision-Makers)

The Lunch Club Platform

The Lunch Club Structure

The Lunch Club is a platform that guides high school students through the design process of identifying, co-creating, and sharing their visions for equitable and sustainable change in their cafeterias.

The platform leverages Empowerment Theory and a Project-Based Learning framework to empower students to take on the role of designer and view themselves as change agents of their environment.

The platform is broken into four main sections:

- 1) Home: Provides an introduction to the platform, shares the Sustainable and Equitable Cafeteria Goals, and gives access to additional Lunch Club tools (Figure 45).
- 2) Learn: Provides information for decision-makers who access the platform including educators, schools, and policy makers (Figure 46-47).
- 3) Share: An area for students to share quick ideas for the future of cafeterias that can be easily viewed by visitors (Figure 50).
- 4) Design: The core of the platform which introduces students to The Lunch Club process and allows them to register and access the LMS (Figure 48-49).

The Lunch Club Process

Step 1: Getting Started (Contextualize) (Figure 51)

1.1 Selecting Your Toolkit: Students choose which toolkit they would like to use

1.2 Finding a School or Community Sponsor: Students identify a sponsor to support them throughout the process

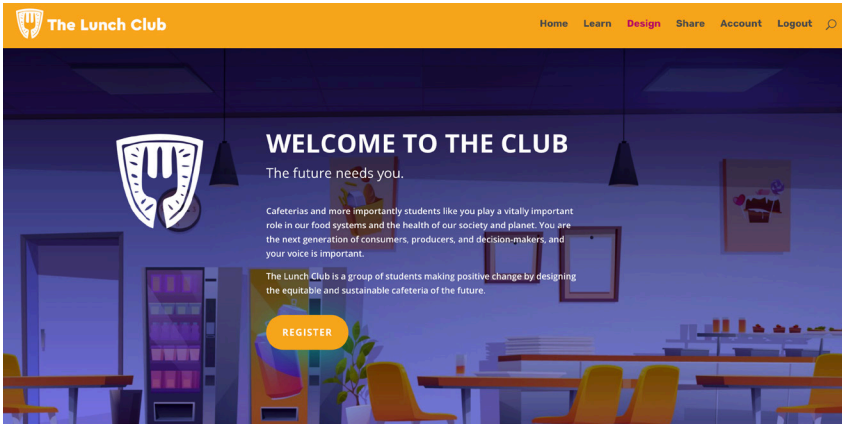


Figure 48. The Lunch Club Design page

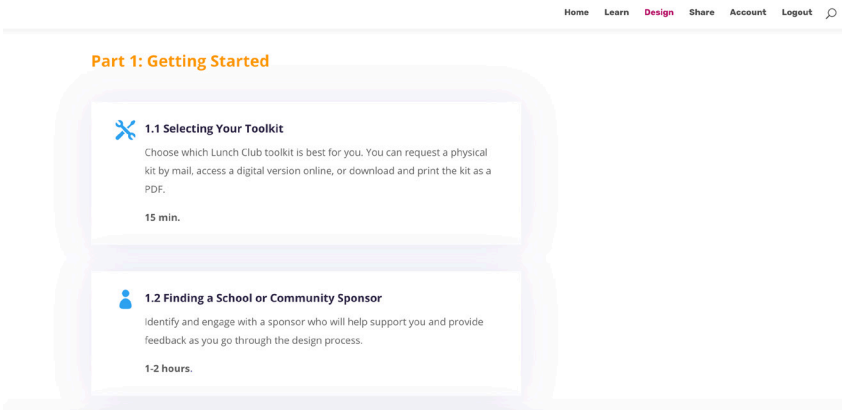


Figure 49. The Lunch Club Design page

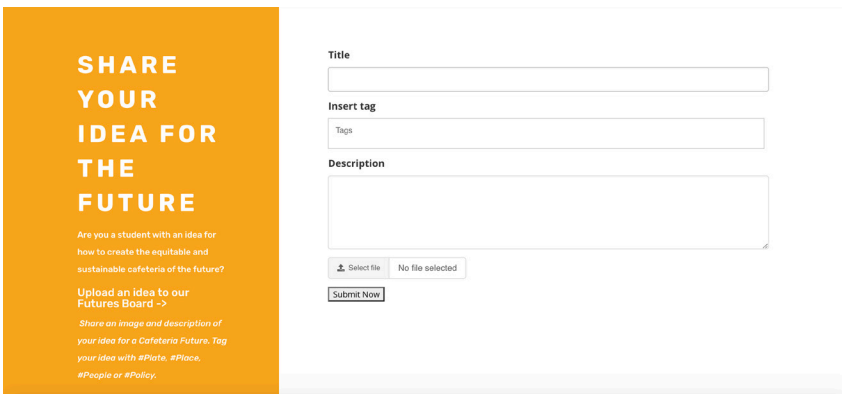


Figure 50. The Lunch Club Share page

1.3 Design Kickoff Meeting: Students are encouraged to participate in a “meet and greet” with a Lunch Club team member

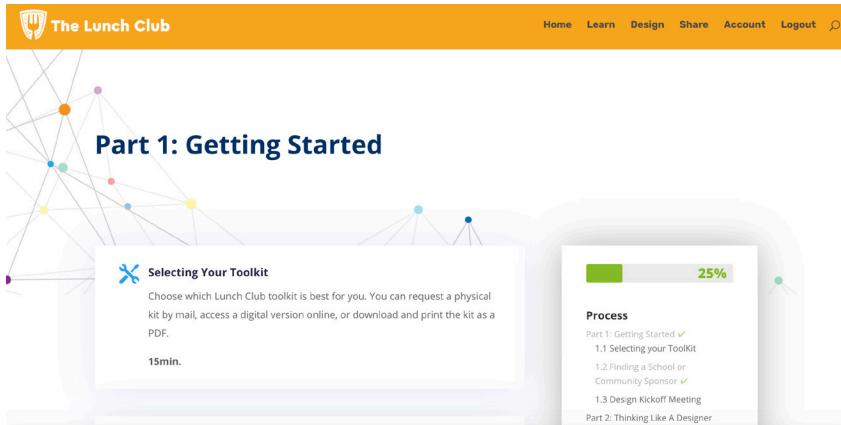


Figure 51. The Lunch Club Part: 1 Getting Started (Contextualize)

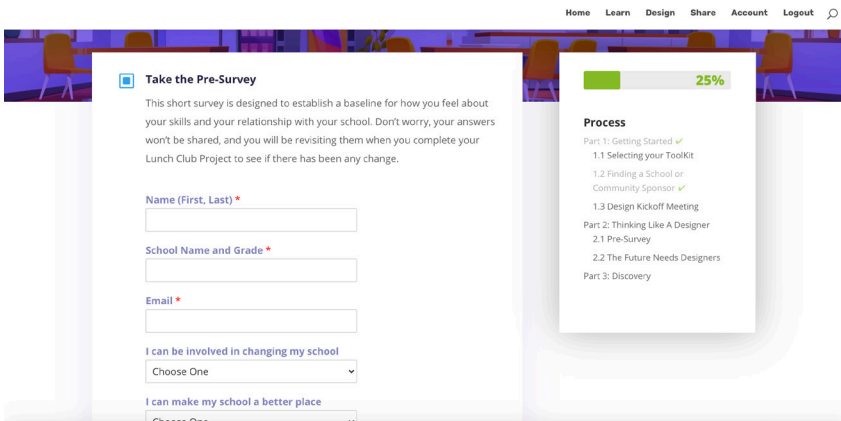


Figure 52. The Lunch Club Part: 2.1 Pre-Survey

Step 2: Thinking Like A Designer (Empower)

2.1 Pre-Survey: Students complete an empowerment pre-survey (Figure 52)

2.2 The Future Needs Designer: Students learn about what it means to be a designer

2.3 The Value of Values: students learn about the importance of designer values and draft their own set of values

Step 3: Discover (Inquire)

3.1 Exploring Your Local Area: Students are asked to do a scan of health, equity, and food issues in their local area

3.2 The Cafeteria System: Students are introduced to system thinking by exploring the cafeteria systems map

3.3 Mapping the Cafeteria: Students use the Cafeteria Mapping Tool to create a layered system map of their cafeteria

3.4 Stake Out Your Stakeholders: Students create a stakeholder map for their cafeteria

3.5 Engaging stakeholders: Students conduct interviews and surveys with their identified stakeholders

Step 4: Make (Co-Create)

4.1 Generate Ideas: Students play the Cafeteria Futures Ideation Game with stakeholders

4.2 Identify Your Area of Focus: Students choose a cafeteria area and goal they want to align with

4.3 Collaboration for Change: Students organize a meeting with stakeholders where they co-create a plan for creating change in that cafeteria area

4.4 Measuring Success: Students create a written plan and rubric for successful change based on their co-creation meeting with stakeholders

4.5 Check-in Meeting: Students attend a meeting with a Lunch Club team member to discuss their progress

Step 5: Share (Deliver)

5.1 Design Visioning: Students create a design vision of their future cafeteria

5.2 Present: Students choose a modality to share their design vision

5.3 Post-Survey: Students complete an empowerment post-survey and compare their results to the pre-survey

5.4 Reflection: Students reflect on their experience

Additional Tools

A set of additional tools was created during the design and research process for The Lunch Club. These tools and others can be downloaded from The Lunch Club platform home page.

Creating for Cafeterias Guidebook (Figure 53)

The *Creating for Cafeterias* Guidebook provides a journey map for generating and incorporating student-led art in the cafeteria. It is designed for high school students interested in improving their cafeteria experience, as well as teachers, administrators, and other sponsors who wish to support this effort. This guidebook is designed to “plug in” to *The Lunch Club* platform by providing a detailed ideation and implementation guide for students whose design vision includes the incorporation of visual arts.

The Lunch Club Simulation (Figure 54-55)

The Lunch Club Simulation is an engaging learning activity for high school students who may or may not participate in *The Lunch Club* platform. Students take on the role of various stakeholders in a high school cafeteria and attempt to design a new lunch menu. The



Figure 53. Creating for Cafeterias Journey Map

Example

School Principal

You are the high school Principal and oversee all aspects of the school including the cafeteria. You have been in this position for 2 years and have been trying to make long overdue updates to the school's infrastructure and education. You care deeply about your students' health and well-being, but you must maintain school budgets and ensure guidelines are followed.

You are the leader of this task force and are responsible for ensuring that goals are accomplished and that all parties are able to reach a compromise.

As task force leader you will begin the simulation and make sure the conversation stays on track.

At the start of the simulation, read this aloud to the group:

Hello and thank you for giving your time and energy to help create a better food experience for our students. Each of you brings your own expertise to the table and will provide valuable ideas and feedback. Over the next hour, we will work together to design a better lunch menu for Lincoln students. I ask each of you to introduce yourself and your role in this task force.

[Each participant should say their name, their role, and another fact if they choose.]

Identity Sheet: Principal Larrea Young / EDUC 602

Figure 54. Lunch Club Simulation excerpt

Last Month's Lunch Menu

Look over this past menu, what sort of meals do you see? Start thinking about how you could improve this.

Monday	Tuesday	Wednesday	Thursday	Friday
Beef, Mac and Cheese Corn Canned Peaches Milk	Ham and Cheese Croissants Carrot Sticks Applesauce Cup Milk	Chicken Noodle Soup Bologna Sandwich Apple Milk	Pizza (Pepperoni or Cheese) Milk	S Salisbury Steak Slice of bread Corn Milk
Hotdog on Roll Cucumber Sticks Applesauce Cup Milk	Spaghetti w/Meat Sauce Kobbing Salad Orange Milk	Fish Sticks Peas Apple Milk	Pizza (Pepperoni or Cheese) Milk	Chicken Nuggets Broccoli Applesauce Cup Milk
Meatball Sub French Fries Applesauce Cup Milk	Grilled Cheese Tomato Soup Grapes Milk	Eggs and Sausage on English Muffin Bell Pepper Slices Pineapple in Syrup Milk	Pizza (Pepperoni or Cheese) Milk	Chicken Noodle Soup Bologna Sandwich Apple Milk
Chicken Nuggets Broccoli Applesauce Cup Milk	Hot dog on Roll Cucumber Sticks Applesauce Cup Milk	Ham and Cheese Croissants Carrot Sticks Applesauce Cup Milk	Pizza (Pepperoni or Cheese) Milk	Spaghetti w/Meat Sauce Kobbing Salad Orange Milk

Why is milk on the menu everyday?
Milk (either white or chocolate) is a required part of a free or reduced lunch.

Group Materials Larrea Young / EDUC 602

Figure 55. Lunch Club Simulation excerpt

simulation is designed for 5–7 students and will take 1.5–2 hours to complete. This simulation is designed to be used as part of the health, nutrition, or sustainability curriculum.

DISCUSSION

Impact and Design Contributions

As design has moved away from focusing on form to addressing systems and behaviors in other fields, it is important to reflect on our role as “expert” designers. It can be argued that humans have been “designing” food systems since the dawn of humanity, so what is different now? As food systems and integrative designers, what

are we contributing that is distinct from the contributions of policy makers, program managers, food service providers, and curriculum developers? To answer these questions, we describe the design-specific contributions this work has made to the space of food equity and access and integrative design.

Design is often thought of as a means to an end, a tool of problem-solving and sometimes sense-making. Through the model for Dialogic Design Empowerment proposed here, this research seeks to position design as a process for communication and relationship-building rather than solution-finding. Here design serves as a way to build bridges between stakeholders who already have the capacity to enact change with the right support. This project demonstrates how an expert designer can translate the design process for others in a way that empowers them to make positive change. We hope that this model will be applied to future design work both in educational and food spaces.

This research calls attention to the vital importance of incorporating student voice in cafeteria reform. As designers, we are trained to view stakeholders as experts of their own experiences and contexts. This is a practice that we should continue to share with others outside of the field, especially when marginalized populations are concerned, to slowly erode the notion of doing something “for” rather than “with” those who are most affected by a problem.

Lastly, this research seeks to make design education more accessible and more relevant to high school students who have been marginalized in the development of curricula and cafeterias. Most curricula of this nature require in-person meetings with an adult who acts as an expert facilitator (e.g., a design, teacher, or community leader). Although this model has many benefits, the interactive and accessible nature of online technologies creates an opportunity for the experts to take a more backseat role. The platform itself provides the necessary tools and structure, allowing students to determine how and when they interact. Although adults are still important, they are there to provide

input and support as a collaborator, not a leader.

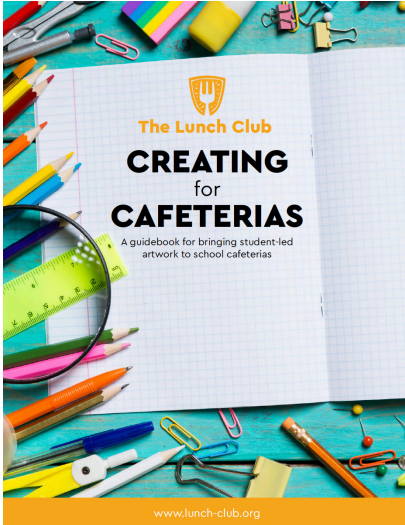


Figure 56. *Creating for Cafeterias* cover



Figure 57. *Creating for Cafeterias* Ideate

Limitations and Future Work

This research and *The Lunch Club* platform focus on the student side of this model and on creating tools to form the bridge between students and decision-makers (Figure 58). It is not designed to “close the loop” by helping decision-makers provide information and structure to students. Information and structure (anything from budget to fire code to nutrition guidelines) is critical to implementing student ideas. Because of this, *The Lunch Club* is limited in its ability to actionably implement student visions into their current school cafeterias. Instead, the platform focuses on engaging students in the design process and empowering them to share their voice, which must come before the other. Therefore, future research and design work is needed to close this loop so that platforms like *The Lunch Club* can better support the

implementation of ideas.

Some of this work is already in progress. *The Creating for Cafeterias* guidebook (Figures 56-57) is designed to provide the structure for students whose visions include bringing visual art to their cafeteria. We hope to expand these guidebooks, with the support of EduChange, to provide implementation support for a range of student projects.

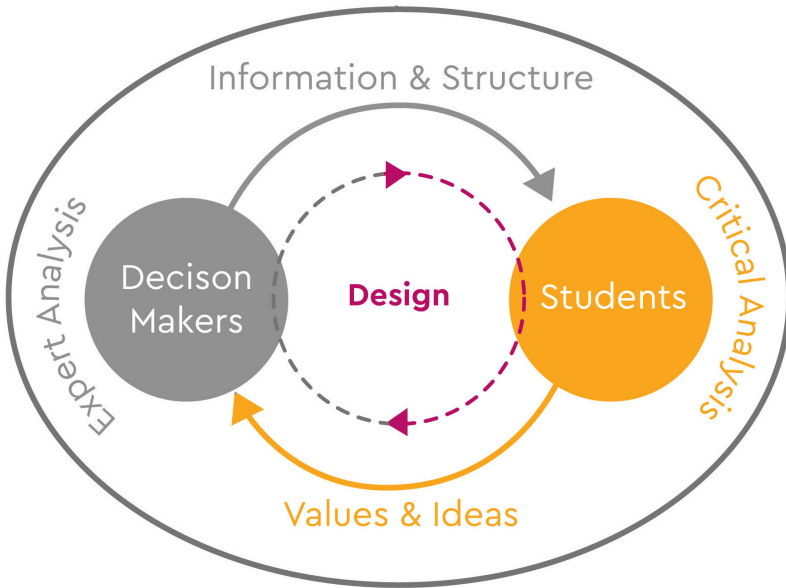


Figure 58. Portion of model this research focuses on

CONCLUSION

Cafeteria spaces represent the largest access point to food in U.S. public schools. Over 30 million meals are served each day through the National school lunch program alone, and many students consume over 50% of their daily caloric intake in their school cafeteria (Cullen 2017). Because of the vital role cafeterias play in the lives of our children, our schools, and our food systems, they have become a political and ideological battleground. In their current state, they create stigmatizing experiences for students and fail to provide healthy, fresh,

and nutrient-dense food (Karnaze 2018).

These challenges resulted from decades of discriminatory and unsustainable policy making, depleted education budgets, and pressure from private industry. In response, thousands of people are working to improve this space, from reality TV shows to the USDA MyPlate to FoodCorps education programs. However, much of this improvement work is mainly focused on healthy choices at an individual behavioral level and is targeted at elementary and middle school students. Currently, most changes in the cafeteria are undertaken without incorporating student voice or ideas in the process. This impedes the sustainable and equitable reformation and development of these spaces and removes opportunities for students to gain essential skills, attitudes, and knowledge as 21st century citizens.

As the main stakeholder of cafeterias, students should not only be participants but leaders in the development of these spaces. They are the consumers, growers, and decision-makers of the future. In particular, high school students are at a developmental milestone where they are building identities around food separate from that of their parents and guardians (Shepard 1996, pp. 347). With proper support, these students are ready and able to address the complex problems in their cafeteria.

This research is grounded in the methodologies of design futuring pioneered by Tony Fry. Design is viewed as a practice of “redirection” toward a sustainable future, rather than on the building of form. This redirecive design practice is guided by the philosophies of dialogic design, co-design, and empowerment theory and carried out using design and futuring methods. Using these methodologies, we first proposed a model for Dialogic Design Empowerment that leverages the design process to elevate and incorporate student voice in schools. This model was applied with high school students in three phases: inspire, ideate, and implement.

During the inspire phase an initial exploratory research project was conducted with a cohort of 46 high school students and several staff members. This revealed the potential of students to envision more equitable and sustainable versions of their cafeterias and the current lack of student voice in decision-making processes. At the start of the ideate phase, a co-creation workshop combining interviews, mapping, and future-casting methods was designed, tested, and piloted with a group of 21 students. Data collected from these workshops and other research activities was analyzed, and key insights identified. These insights led to the design of *The Lunch Club*, an open, online Project-Based learning platform, which would allow students to co-create and share their visions for the future of school cafeterias on an ongoing basis. In addition, student visions collected throughout the research were used to outline 14 student-generated goals for future cafeteria development. During the implement phase, *The Lunch Club* platform was prototyped and built in Wordpress and initial usability testing was completed.

The Lunch Club platform builds on the work being done by organizations like FoodCorps, The Edible Schoolyard, and Youth Empowerment solutions. It seeks to add to a growing conversation about how we can empower students to address the wicked problems of the 21st century. We intend that *The Lunch Club* will inspire change not just in the cafeteria itself but in the attitudes of those who eat, work, and learn there.

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