Chapter 2
The History of Design Thinking and its Contributions to Food Experiences and Well-Being

Caroline Graham Austin

2.1 Introduction

For those who have not encountered it before, the term "design thinking" might conjure an image of a closed circle of sophisticates having rarefied conversations in a stark, white office space located in a chic neighborhood in a cosmopolitan city. In fact, the opposite is true – design thinking is inherently democratic. The design thinking approach incorporates questions, resources, and suggestions from everyone who might be a stakeholder in a human-built system and focuses on continuously improving people's lives. It is built on the idea that empathy is essential to design. Design thinking is "deeply human," combining intuition and rationality (Brown and Wyatt 2010, p.33). Its approach to interdisciplinarity is described as *integrative* (e.g., Buchanan 1992). As a method, it has been thoroughly vetted across myriad academic disciplines, surfacing questions and providing frameworks for solutions (e.g., Dym et al. 2005; Beckman and Barry 2007). In the most straightforward way of thinking about it, design thinking is simply a human-centered approach to solving problems, large and small.

There are four major areas that are consciously designed by people for people: symbolic and visual communication, for example, advertising, packaging; material objects, for example, buildings, furniture; activities and organized services, for example, religious communities; and complex systems or environments for living, working, playing, and learning, for example, neighborhoods, corporations, sports leagues, and educational systems (Buchanan 1992). The aggregate of these four areas is essentially the fabric of modern life. Each of these areas comprises multidisciplinary elements, and all of them interact with each other. This includes but is hardly limited to tangible objects, infrastructure, educational systems, offices spaces

C. G. Austin (✉)
Montana State University, Bozeman, MT, USA

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and processes, and foods (Kolko 2015). In essence, everything we encounter and interact with on a daily basis is designed.

When thinking about the main areas where design has been emphasized, it is easy to see how design has been applied in the context of food. Symbolic and visual communication design techniques are obviously used to create consumer appeal in food packaging and advertising. They are also used in the creation of foods themselves, for example, breeding for beautiful apples that will appeal to buyers (Cliff et al. 2002). Design for material objects in the context of food includes creating packaging that focuses on safety, freshness, and convenience. Processed foods are also engineered as material objects that consistently perform in certain desirable ways, both during preparation and consumption, for example, a cheese that melts smoothly and tastes both creamy and tangy (Chen and Englen 2012). Activities and organized services designed for food include shopping and dining experiences at shops and restaurants. They also include institutional food preparation and distribution protocols, serving large numbers of people in schools, hospitals, and military contexts. Finally, in Western economies, large-scale, diversified food supply chains are critical, complex systems designed to enable modern modes of living, working, playing, and learning. However, as ecological, social, and economic concerns have mounted about the long-term viability of such supply chains, there has been a push to design sustainable, resilient local and regional food systems (Francis et al. 2003; Wezel et al. 2009; Fernandez et al. 2013).

In this chapter, we examine how design thinking has evolved over time, how these design principles have been applied to the production of foods themselves and food experiences, and how these designs have been intended to benefit consumers as individuals and in larger communities. As such, we look at the recent history of intentional food design through the lenses of food well-being (Block et al. 2011) and food experiences (Batat et al. 2019).

Food well-being (FWB) is defined as "a positive psychological, physical, emotional, and social relationship with food at both the individual and societal levels" (Block et al. 2011, p.9). There are five dimensions of FWB: food availability, food socialization, food literacy, food marketing, and food policy. Each of these dimensions can present challenges and opportunities for designers (i.e., all of us) as we think about issues related to food. These issues can be large or small, long- or short term, individual or community-based (Bublitz et al. 2019; Scott and Vallen 2019).

It is fairly obvious to see how design principles can be applied to enhance FWB at micro and macro levels. For example, discussing the disconnect between people in cities and the realities of food production for large, concentrated populations, Pothukuchi and Kaufman (1999) point out that, "Despite its low visibility, the urban food system nonetheless contributes significantly to community health and welfare; to metropolitan economies; connects to other urban systems such as housing, transportation, land use, and economic development; and impacts the urban environment" (p.213). These are not trivial concerns; in 2016, Michael Bloomberg, the former mayor of New York City, gave a talk at Oxford University in which he said, "I could teach anybody…to be a farmer. It's a [process]: you dig a hole, you put a seed in, you put dirt on top, add water, up comes the corn" (Saïd Business School

2016, 42:01). His implication was that farming is straightforward and not particularly intellectually demanding – misunderstandings that have serious implications when considering educational, fiscal, and environmental policies. These observations about how city dwellers (mis)understand food at a basic level illuminate opportunities for design thinking for FWB to be applied at the community scale to enhance food availability, marketing, and policies, in order to support sustainable local and regional food systems that feed people in metro areas. It also points out a huge design opportunity to educate urban eaters (i.e., food literacy) about everything from where their food comes from, to who grows it, to how big an impact agriculture has on nearly everything they do.

A major component of food experiences is the experiential pleasure of food (EPF), defined as "the enduring cognitive (satisfaction) and emotional (i.e. delight) value consumers gain from savoring the multisensory, communal, and cultural meaning in food experiences" (Batat et al. 2019, p.393). It is easy to see how design principles have been applied to create pleasurable food experiences, as in the creation of quasi-addictive salty snack foods. While such foods may be highly palatable, they violate the definitions of both EPF and FWB, by encouraging overeating (which can lead to obesity and diet-related disease) and by disconnecting food from notions of community and culture (Gearhardt et al. 2011). Given these outcomes, one may conclude that simply applying design to foods is not sufficient to develop FWB and EPF, and in fact, may undermine eaters' desire and ability to eat in ways that support such goals. Thus, we argue that design *thinking* (rather than simply design) is necessary and must be applied to foods, food systems, and food experiences, in order to achieve holistic well-being.

The design thinking approach is meant to genuinely improve consumers' lives by prioritizing human experiences as we collaboratively create the fabric of human life (Papanek 1971; Kolko 2015; Brown and Wyatt 2010; Cross 1982). When executed well, design thinking accounts not only for individual people's physical, intellectual, emotional, and spiritual needs, but for the expanded needs of their communities and natural environments as well. Ideally, in the context of food, and everything else, the products and systems that emerge from the design thinking process should satisfy people's needs and wants, both utilitarian and emotional (Brown 2008).

The modern design thinking approach is not a monolith nor is it linear, but the process generally follows these basic steps (Fig. 2.1):

When engaging in defining the problem and ideation around a solution, design thinking teams will engage in divergent thinking (i.e., generating multiple possible avenues to try), followed by convergent thinking (i.e., selecting one of these possibilities as the "best guess"). All design thinking processes are iterative, with teams investigating ideas by using their understanding of individual and community

Fig. 2.1 The modern design thinking process

stakeholders, and looping back to revisit their thinking and decision-making when they do not work. The shorthand for these processes is "Designing the right thing" followed by "Designing the thing right" (e.g., Ball 2019).

Design thinkers find the process most effective when they rely on empathy, tolerate ambiguity, encourage multiple perspectives, embrace iteration throughout the process, accept failure, and maintain confidence and optimism that a workable solution will eventually emerge. Over the past 30 years or so, the world has seen a widespread shift in thinking and practices toward explicitly interdisciplinary, human- and community-centered design. Design thinkers keep social, environmental, and economic impacts in mind as they tackle problems alongside community members where they work (Szczpanska 2017).

In this chapter, we briefly look at the history of design thinking and how design has been applied to foods, food experiences, and food systems. Essentially, all design thinking efforts today, including in the context of food, embrace the values of sustainability, community focus, and individual well-being. The current focus is on systems and environments, as well as on tangible goods (Szczpanska 2017). As Tim Brown, CEO of IDEO writes, "[design thinking] principles turn out to be applicable to a wide range of organizations, not just to companies in search of a new product offering. A competent designer can always improve upon last year's widget, but an interdisciplinary team of skilled design thinkers is in a position to tackle more complex problems" (Brown and Katz 2011, p.381).

2.2 The Evolution of Design Thinking and its Applications to Food

Design thinking can be seen in three different ways: as a theory of practice, as an organizational resource, and as a mindset (Kimbell 2011). While it did not start out as such, the current consensus seems to be that everything is designed, and everyone designs things (Cross 2011). Everyday people are encouraged to participate in design processes not just as consumers of products and systems, but as designers in their own right, in order to make problem-solving "more intelligent and meaningful" (Buchanan 1992, p.8). As a reflection of this shift, the terminology around the design thinking process is continuously evolving, moving from "design science" to "human-centered design" to "participatory design" (Szczpanska 2017).

This evolution has expanded the notion over time of who is a designer and what can be thought of in terms of design. In terms of the process model presented above, the historical progress of design thinking looks like this (Fig. 2.2):

Fig. 2.2 The historical progress of design thinking

1. Design Science (1950s): Prototyping and testing consumer goods for convenience and efficiency – product focus.
2. Human-Centered Design (1960s–1970s): From an ethical standpoint, correctly identifying both problems and solutions – user focus.
3. Participatory Design (1990s–present): Striving to understand the tangible and intangible needs of individuals and communities to promote well-being – holistic focus.

We explain each step below.

Design thinking as we currently conceive of it began in the 1950s, championed by prominent engineers Buckminster Fuller, who called it *design science*, and John Arnold, who preferred the term *comprehensive design* (Arnold and Clancey 2016). Fuller's approach emerged from the field of mechanical engineering and focused on developing tangible objects for human use in the most sustainable and efficient ways possible (Cross 1982). In 1963, Fuller wrote, "A designer is an emerging synthesis of artist, inventor, mechanic, objective economist and evolutionary strategist" (Fuller 2009, p.116). Fuller's focus was on the designer, and the products he created, but by the mid-1950s, Arnold had extended the concept by emphasizing the holistic, humanistic aspects of design. Furthermore, in a big step forward, Arnold brought to light how important it is, when trying to solve a problem, to first understand and accurately identify what the problem actually is (Arnold and Clancey 2016). Thus, by 1960, the current understanding of design thinking as a way of seeing and interacting with the world had been articulated. However, the dominant paradigm of the time was focusing on new food products for consumers to buy and consume, rather than on including consumers in the process of creating new foods for themselves.

A classic example of a consumer-focused food innovation from the 1950s is the frozen Swanson TV Dinner, introduced in the United States in 1954 by Swanson & Sons ("No Work," 2014). While the food in TV Dinners was not particularly tasty or nutritious, the product was simultaneously comforting (e.g., turkey and mashed potatoes) and exciting (served on a futuristic aluminum tray). Best of all, preparing TV Dinners required neither cooking nor cleaning, providing an extremely convenient way for busy women to perform their roles as homemakers who were primarily responsible for feeding their families (Gust 2011). Other food innovations from the 1950s that were designed to provide more convenient dining options for busy consumers include commercially canned foods and drive-through restaurants.

During the 1960s, the Scandinavian concept of cooperative design became globally prominent. This movement promoted the idea that design should incorporate all stakeholders' perspectives, rather than being walled off as the province of professional engineers and designers. Understanding the democratic nature of design changed practitioners' and proponents' way of thinking from that point onward. Another Scandinavian innovation of the time focused on improving workplace operations, in addition to tangible consumer goods (Bjerknes and Bratteig 1995). These advances in the 1960s were subtle but crucial developments in design thinking overall – they expanded people's understanding of who can participate in design

(i.e., everyone) and what types of issues design can address (i.e., systems and services, as well as products).

An example from the 1960s is the democratization of gourmet cooking, exemplified by the first celebrity chef, Julia Child. Child introduced the possibility of cooking traditional French dishes at home to American audiences via cookbooks and a television program called *The French Chef*. While she was highly accomplished in the kitchen, a great deal of Child's success lay in the fact that she was professionally trained but had no professional cooking experience (Child 2006). When she made a mistake or encountered an obstacle during taping, she improvised and showed audience members how a dish might be saved…or not (Nilsson 2012). It was not exactly peer-to-peer teaching, but Child emboldened American home cooks to explore basic ingredients and learn cooking techniques on their own. In 1966, she was the subject of the cover feature story in *Time* magazine, which stated,

> Amid an avalanche of new cookbooks—206 last year alone—Julia Child's five-year-old *Mastering the Art of French Cooking* has grown to be the new bestseller in the field, with close to 300,000 copies sold at $10 apiece. But what really makes her just about everybody's chef of the year—and the most influential cooking teacher in the U.S.—is that her specialty, French cuisine, is the central grand tradition for the growing multitude of home gourmet cooks. It is an enthusiasm that is also cascading into the U.S. kitchen, turning it into the most scientific, colorful and savory room in the house, a combined work area and show place ("Everyone's," 1966, para. 3).

In a move that engendered increasing multidisciplinarity, social scientists joined the field during the 1960s and 1970s, researching and writing about design from the human standpoint, leading to *human-centered design*. In his seminal design text, *The Sciences of the Artificial*, Herbert Simon wrote, "the proper study of mankind is the science of design, not only as the professional component of a technical education but as a core discipline for every liberally educated man" (Simon 1969, p.83).

In 1971, anthropologist Victor Papanek wrote a scathing assessment of the design field, asserting that designers have the utmost ability to shape people's lives, yet do not assume the "social and moral responsibility" that should accompany such power (Papanek 1971, p.ix). Despite (or maybe because of) this critique, Papanek's book became an international best seller, teaching designers how to incorporate anthropological perspectives into their work in order to be more human-centered and socially responsible. Papanek revealed how designers' accountability (or lack thereof) had been a huge, unacknowledged factor in supporting (or undermining) individual and community well-being. When they are not held to account for the unintended consequences of their designs, designers have much less reason to care about the outcomes of their work.

In terms of food, 1971 was a watershed year for socially and environmentally responsible design thinking, and not just because of Papanek. The early 1970s saw Americans beginning to understand the total costs of a postwar "modern" diet based on mass-produced convenience foods. In 1971, Frances Moore Lappé (Lappée 1971) published *Diet for a Small Planet*, a bestselling book that advocated for vegetarianism as a way to conserve food resources and combat world hunger (Aubrey 2016). The same year, Alice Waters, a nonprofessional chef like Julia Child,

co-founded the revolutionary Chez Panisse in Berkeley, California. Like Child, Waters translated eating experiences from time she spent in France to create the American farm-to-table restaurant concept. As a restauranteur, she helped create a vibrant regional food economy by building relationships with farmers and small-scale processors (e.g., bakers, cheesemakers) and using local, seasonal ingredients to create Chez Panisse's daily menu (Lastoe 2019).

However, in the United States, with divorce on the rise and mothers entering the workforce in record numbers (Pew Research Center 2015), the late 1970s and 1980s also ushered in a flood of food design focused primarily on convenience for busy families. This was a move back toward product-centricity in design, similar to what American consumers had experienced in the 1950s. Examples of widely adopted food innovations from the 1980s include Capri Sun self-contained drink pouches, which were virtually unbreakable and required no refrigeration (Lazarus 1991), Wal-Mart Super Centers that combined grocery and discount stores under a single roof, allowing for one-stop shopping (O'Connell 2020) and the microwave oven, which went from a novelty item (<10% of households) to a kitchen staple (>90% of households) during the decade (Thompson 2012).

Thus, the philosophy of human-centered design thinking about food waned during this period, but in the late 1980s and early 1990s, there was renewed interest in design thinking as a general approach to design inquiry and practice. In 1991, designers David Kelley, Bill Moggridge, and Mike Nuttall created the IDEO (IDEO 2019), now one of the world's preeminent design firms. Their guiding principle was that design, regardless of context, should be human-centered. In addition, the founders committed themselves to employing a diverse range of knowledge and talent, so from the beginning, IDEO's design teams have been purposely multidisciplinary and inclusive of stakeholders, that is, *participatory design* (Brown and Wyatt 2010). In addition to re-thinking tangible goods, design thinking expanded to include macro-level systems, for example, food supply chains, that comprise the modern landscape (Buchanan 1992). As a result, the portfolio of contexts where design thinking has been successfully applied now includes tangible goods, services, branding, digital spaces, organizations, experiences, and the natural environment (IDEO, 2019).

In conjunction with the focus on community participation for community well-being, one growth area in contemporary food design thinking has been in the development of local and regional food systems. Generally speaking, these smaller scale food systems improve communities by increasing their sustainability and resilience, considering health and nutrition, ecological, economic, and sociocultural impacts (Francis et al. 2003; Wezel et al. 2009). Examples of participatory design for food systems include projects underway at IDEO that range from urban farms to school cafeterias to home kitchens ("How Can We," 2020). On the academic side, universities have added food/design coursework to their curricula, such as the University of Utah's "Introduction to Design Thinking: Food Systems" course (ULibraries 2020), and researchers have started publishing work investigating this topic (e.g., Ballantyne-Brodie and Telalbasic 2017; Zampollo 2016).

2.3 How Design Thinking Can Contribute to Food Experiences

It is important to note the difference between food products and food experiences, noting that the two are separate concepts that are entirely intertwined. Food products are straightforward – what we, as literal consumers, put in our mouths. These are the items that we chew and swallow to provide our bodies with energy, nutrition, flavor, texture, and so on. In contrast, food experiences comprise everything that surrounds and accompanies the acts of chewing and swallowing, before, during, and after we eat. As Batat et al. write, "Food experiences involve the anticipation of food events and food practices, purchasing, consumption, and remembering" (Batat et al. 2019, p.393). Food products are just one piece of the food experience.

As illustrated in the previous section, design principles, and even design thinking principles, have been easy enough to apply to the creation of food products. However, we argue that it is impossible to create true, widespread food well-being without applying design thinking principles to food experiences, because of the holistic nature of food experiences and FWB. There are myriad factors that influence our perceptions of food experiences, the most intuitive of which is food's sociocultural dimension. For example, Airbnb, the global travel behemoth, launched a new service in fall 2019 called Airbnb Cooking Experiences, which fosters explorers' connections to places through people and food. In launching the program, the firm wrote,

> Through Airbnb Cooking Experiences, we are presenting a new way to understand culture through food. Unlike typical cooking classes, which can feel intimidating or time-consuming, at the heart of every experience is human connection; people coming together to make and share a meal. Hosted by families, farmers, pastry cooks and more, local hosts can now highlight the deeper meaning behind the food you eat, teaching traditional recipes and sharing stories in intimate settings around the world (Airbnb 2019, para. 2).

This program is designed to encourage human understanding through food experience, emphasizing that eating the planned meal is merely one element in this curated cultural exchange. In keeping with the design thinking ethos of participatory design, many hosts for these experiences are not professional chefs, but rather, people who simply want to share food experiences with travelers. Titles of co-created experiences include, "Traditional Uzbek Home-Cooking," "Handmade Pasta with Grandma," "Make Japanese Street Food with Mom," and "Home-Cooked Flavors of Singapore" (Airbnb 2019, para. 10). Given the language of the press release, it is safe to presume that these courses have been iteratively prototyped – another element of design thinking – incorporating participants' wants, needs, limitations, and other perspectives in order to co-create experiences that have tangible and intangible benefits, promoting FWB through cultural exchange.

Food cultures and food experiences incorporate not just sociocultural elements, but local ecology, technologies, and economic and political histories as well (e.g., Kingsolver 2007). All these elements interact to create an expanded "human terroir" (Austin 2010, 28:25). It might seem obvious that the combination of food,

community, history, and culture within specific spaces create positive food experiences in Tuscany, Paris, or southeast Asia; there is encouraging empirical evidence demonstrating that these elements can also have meaningful, reinforcing experiential effects in thoughtfully designed institutional settings.

For example, military dining has a long-standing, global reputation as being highly utilitarian: low quality, flavorless, and joyless. The product design focus has been on maximizing nutrition, economy, and ease of preparation, which are certainly important considerations when feeding soldiers three times a day, but not conducive to experiential pleasure or food well-being. Carins et al. (2020) conducted a study in which they changed the atmosphere of an Australian military canteen to more closely resemble a casual café. Based on prior consumer-based research on military dining experiences, they holistically redesigned the layout, aesthetics, variety, and presentation within the dining room. In the previously drab, stiff environment, they changed the servicescape by improving the table layout, lighting, and décor. They reduced congestion and queueing and increased opportunities for both community and autonomy, depending on diners' needs. These changes resulted in diners' increased satisfaction with the food experience in terms of their perceptions of the food quality and variety, and their overall enjoyment of eating in the canteen; the authors conjecture that by increasing satisfaction, such changes can ultimately increase the nutritional status (and therefore, the overall FWB) of the military personnel who eat there.

Adapting institutional food experiences to include learning how to grow and prepare food, one can look to school communities as another beneficiary of holistic design thinking interventions. In her book *Animal, Vegetable, Miracle,* Barbara Kingsolver writes,

> [A positive, experiential food movement] engages schoolchildren and teachers who are bringing food-growing curricula into classrooms and lunchrooms…. It includes the kids who get dirty in those outdoor classrooms planting tomatoes and peppers at the end of third grade, then harvesting and cooking their own pizza when they start back into fourth" (Kingsolver 2007, p.20).

In keeping with the notion of participatory design, this type of farm-to-school educational innovation requires the commitment of teachers, parents, and students alike in order to be successful. For example, teachers' input is integral to deciding what they want to grow and what they are capable of growing. If the garden fails (from poor soil, pests, neglect, etc.), teachers can learn, alongside their students, what went wrong and how to improve their yield the following growing season. Kingsolver writes that this type of educational programming also "owes a debt to parents who can watch their kids get dirty and not make a fuss…. to countenance the ideas of 'food' and 'dirt' in the same sentence" (Kingsolver 2007, p.20). In addition to the pleasures of playing in the dirt and eating fresh food they have grown themselves, these experiences can help even very young children understand the technological, economic, ecological, ethical, and even political dynamics that affect what, how, and why we eat (e.g., "Summer Camps," 2020).

2.4 How Design Thinking Can Contribute to Food Well-being

As noted above, when attempting to create products, programs, or systems that engender holistic food well-being (FWB), it is imperative that design team leaders include the perspectives and insights from the communities they are attempting to serve. This conception of design thinking aligns with the research approach known as community-based participatory research, or CBPR (NIH 2018). In CBPR, researchers work *with* (rather than *for*) community members and other stakeholders to identify issues that need to be addressed, devise research projects that will generate meaningful results, and make collaborative decisions for interventions that will benefit the community.

For example, Hinrichs and Kremer (2002) describe a project designed to benefit low-income families by subsidizing their participation in a local community-supported agriculture (CSA) program. The project was intended to increase poor families' access to fresh, high-quality, nutritious foods, thereby reducing the FWB gap that exists between consumers with high/low socio-economic status. Unfortunately, the researchers discovered that while the program did help people with lower incomes, these consumers also had access to other food resources, unlike the "truly poor" who remained excluded from access and participation in this high-quality local food system (Hinrichs and Kremer 2002, p.83). In retrospect, Hinrichs and Kremer (2002) recognize this error in their program's design, writing, "we hope to encourage reflection about the meanings and mechanisms of social inclusion in such endogenous development projects, and particularly about *the potential difference between nominal and more substantive social inclusion*" (p.85, emphasis added). Even though they did not approach their project using either "design thinking" or "food well-being" to describe their process or their intended outcome, Hinrichs and Kremer (2002) demonstrate commendable intuitive awareness of both. In assessing their attempt to improve on all five elements of FWB (i.e., food availability, food socialization, food literacy, food marketing, and food policy), they recognize the need to first generate genuine empathetic understanding of the lives of the people they are trying to help with this type of effort (rather than making shallow, incorrect assumptions), and rethink their approach in order to improve future outcomes of such well-intentioned programs.

This leads to one of the key lessons to applying a design thinking approach to a systemic issue such as food well-being: Design thinking embraces the power of human insights, while remaining focused and logical (Cross 1982), that is, an inductive approach to problem-solving. During the design thinking process, problems and solutions often emerge simultaneously from ambiguous contexts as the team works through multiple design iterations. The most dedicated design thinkers engage in dialectical inquiry, revisiting their questions, their data, their analytical lenses, and their conclusions until they arrive at valid and meaningful solutions with their target users. Holistic thinking is baked into the design thinking approach – "[It]

is an essential tool for simplifying and humanizing. It can't be extra; it needs to be a core competence" (Kolko 2015, p.70).

Consider another example, cook-at-home meal kit services such as Blue Apron and HelloFresh that deliver precise portions of fresh, wholesome ingredients and instructions to subscribers' doorsteps. (The recipients prepare and eat the meals they create at home.) On one hand, consumers' experiential satisfaction and pleasure with the food itself is very high – they genuinely enjoy discovering well-curated ingredients and recipes, the dishes are well designed (i.e., tasty, nutritious, not too challenging), and the home chefs feel well-earned pride in their own competence in the kitchen, as in the Julia Child example from the 1960s ("HelloFresh," 2020). At the individual level of the FWB dimensions of food access, literacy, socialization, marketing, and policy, meal kits are succeeding. However, the programs are not an unalloyed success, because they have ignored (at their peril) many societal aspects of FWB, especially when it comes to sustainability. In short, many consumers are concerned about the transportation footprint of home-delivered meal kits. In addition, the large amounts of coolant that are required to provide safe, fresh ingredients to customers' doorsteps diminishes people's satisfaction with the service and the overall experience (Ray 2017). If these firms want consumers to truly experience food well-being as a result of subscribing to the service, they will empathize with their customers' perceptions and concerns about the entire meal-kit experience, beyond what happens in the kitchen. While there have been some efforts toward educating the public about how these programs are not as wasteful as they might seem (e.g., Botkin-Kowacki 2019), a design thinking approach would advocate collaborating with consumers to learn what would be genuinely meaningful steps to addressing this question that has both practical and ethical implications.

2.5 How Food Experience and Well-being Can Contribute to Food Design Thinking

The term "design thinking" has experienced a resurgence in the past decade or so, and as such, has experienced a backlash as the concept has shifted and been diluted. People see the term used so often in so many contexts that it has become faddish (Woudhuysen 2011). This is not an unsubstantiated critique, as much of what is termed "design thinking" is often simply product-focused design of consumer products. Nonetheless, the basic notion that empathetic user-focused design takes a holistic approach when creating and evaluating new ideas has stood the test of time. Such principles have been successfully applied to goods, services, systems, processes, and more, as described above. Legitimate design thinking embraces the "emotional value proposition" as the basis for understanding, and solving, the problems we face (Kolko 2015).

However, while food products have received attention, the areas of food experiences and, especially, food well-being have been overlooked by design thinkers.

This creates a remarkable opportunity, as there is a continuum of foods and food experiences that can (and should) be examined through the overlapping lenses of design thinking, food experiences, and food well-being. It has become clear that corporate food designers' focus on creating profitable products that emphasize immediate pleasure and convenience, while minimizing attention to culturally attuned food experiences has generated "big picture" consequences, resulting in the opposite of FWB (Scott and Vallen 2019). As Kingsolver writes:

> Food cultures concentrate a population's collective wisdom about the plants and animals that grow in a place, and the complex ways of rendering them tasty…. A food culture is not something that gets *sold* to people. It arises out of a place, a soil, a climate, a history, a temperament, a collective sense of belonging. Every set of fad-diet rules is essentially framed in the negative, dictating what you must give up. Together they've helped us form powerfully negative associations with the very act of eating" (Kingsolver 2007, pp.16–17).

In modern Western society, enjoying eating – focusing on the experiential pleasure of food (Batat et al. 2019) – is perceived to be gluttonous by people who unthinkingly wolf down huge amounts of empty calories. We are awash in calories and deficient in food well-being (Scott and Vallen 2019). It is truly a conundrum, but one that can be addressed by design thinking.

When thinking about how FWB and food experiences can become part of the design thinking revolution, it may be helpful to examine the component dimensions of food experiences, as marketers do when assessing the strategic marketing environment. Food well-being is more likely to be achieved if design thinkers – especially those employed in the standard commercial food industry – will take into consideration the sociocultural, technological, economic, ecological, political, legal, and ethical dimensions of food experiences they are working to design or improve, that is, the STEEPLE approach (e.g., Armstrong n.d.). As a holistic approach to examining the environment, STEEPLE is complimentary to all three frameworks and can be applied by design thinkers in service of creating positive food experiences and FWB.

Micro-level notions of convenience, pleasure, virtue, value, health, integrity, wholesomeness, community, creativity, and self-determination are all relevant to all three areas of inquiry (FWB, food experiences, and design thinking). Macro-level economic and legal policies around food issues can and should be reconsidered within a multidimensional, stakeholder-oriented frame of reference. All of these ideas have been illuminated in the FWB literature and are ideally suited to increasing our understanding of how and when design thinking can be successfully applied. Everything from growing, harvesting, and preparing one's own food at home to eating commodity-grade mass-produced foods from a set menu at a specific time of day in a public school cafeteria can be examined – and likely improved – in light of the three complimentary paradigms. The concepts of food experiences and FWB already inform each other; projects based on these ideas that are focused on creating a better food system and greater FWB will be a welcome addition to the design thinking portfolio.

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