Family Mise en Place

By
Karen Whistler

BA Visual Communication
BA Studio Art
Seattle Pacific University, 2006

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This work is dedicated to my husband, Nate Whistler.

In addition to endless support, thanks for making quality meals while I was too busy designing and writing about food to cook for us.

Abstract

Using whole, unprocessed food (True Food) to make dinner for weeknights can often be a daunting task for busy families. There are several barriers that keep parents and children (ages 6-10) from cooking nutritious meals together on a regular basis—the main barrier being time. This thesis identified the narrow window of time between when a family arrives home and when they eat dinner as an opportunity to help members of the family to spend valuable time together. This research poses the question: Can a design system help families involve their six- to ten-year-old chidren in preparing True Foods for weeknight dinners?

The result is *Family Mise en Place*, a set of collaborative *Meal Cards*. This collaborative cooking system seeks to organize meal preparation so children can contribute equally to cooking, supporting parents on busy weeknights. *Family Mise en Place* facilitates inclusive cross-generational cooking, helping families build dialogue and learn from one another. A secondary objective is to connect parents and children to the food they eat.
Within this context, family members explore sustainability and health implicitly through the experience of cooking with True Foods.

Family Mise en Place came together by pairing participant research with theories of systems thinking, constructivist learning and Information Interaction Design, supported by an investigation into the history of the North American food system. Research involved interviewing Current Parents (CP; those raising children ages 6-10) as well as Empty-Nesters (EN; those fifteen or more years removed from raising pre-teen children). It also involved a web survey of Current Parents and ethnographic cooking activities with Children (C). Finally, prototype testing consisted of observing families cooking together using the *Meal Card* prototypes. The outcome of this thesis is a toolkit that breaks the cooking experience into three stages: *Gather*, *Prepare* and *Cook*. Each stage is depicted through a *Meal Framework*, which is a series of *Meal Cards* that uses iconography children can understand, makes cooking accessible, and enables kids to contribute to preparing the family meal.

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Key Terms & Definitions

Current Parent: Parent or guardian currently taking care of at least one six- to ten-year-old child.

Child: Person who is to six to ten years old.

Empty-Nester: Parent who is at least 15 years removed from raising a six- to ten-year-old child.

Family: Group of individuals legally or self-identified to be connected as a family. For this research, families include at least one six- to ten-year-old child.

True Food: Unprocessed and minimally processed whole foods and ingredients.

Cross-generational: When individuals from different generations come together. In this case, parents and children working with one another.

System: According to Donella Meadows "A system is an interconnected set of elements that is coherently organized in a way that achieves something" (Meadows, 2008, p. 11).

Systems Thinking: Method of investigation based on viewing parts within the whole to understand how the elements influence each other.

Interaction: Actions and influences in between people and with objects.

Experience: An interaction between people, with an object, or the observation of facts or events that leave an impression on someones thoughts or emotions.

Information Interaction Design: Defined by Nathan Shedroff, a design practice that emphasizes the intersection of Information Design, Interaction Design and Sensorial Design.

Constructivism: Philosophy that states we all construct our own meaning of the world through situations and experiences, Constructivism values hand-on learning.

Heuristic: Enabling a person to learn for themselves.

Dialogue: Shared verbal conversation or non-verbal interaction between two or more people.

Narrative: Sequence of events that build a story. Within a family, narrative can be built over time as the history of events and interaction among family members.

Introduction

"On a practical level, I'd like to learn how to organize better."

-Participant CP 2

Introduction

Many people in North America do not think they have the time or money to cook whole, unprocessed healthy meals. A Hewlett-Packard (HP) study on the schedules of working families identified that on weeknights "cooking was seen more as a stressful chore and source of guilt, than as a pleasure" (Beech et al., 2004, p. 33). This thesis project, *Family Mise en Place*, which engaged participant research supports this observation[1]. One parent commented, "I feel guilty all the time because if I put [my kids] in front of the television I can actually make dinner [...] but if [I] don't put them in front of the television then [I've] got screaming kids - that's even harder" (CP 1). Many parents feel trapped and frustrated by the need to feed the family on weeknights. The food and family experience become secondary to the immediate stressors of the dinner hour. Undervaluing our interaction with food overlooks an opportunity for families to connect and learn from one another.

Participants helped to identify a significant barrier: they perceive that they lack the time to prepare home-cooked meals during the week. This thesis proposes a creative solution that addresses this crucial barrier and, in doing so, offers a new view of how families could spend quality time together. Many parents commented that their children expressed interest in cooking, but they did not know the best way to include their kids when rushing to get dinner on the table. One participant observed, "[My son] would probably cook more than I give him opportunity to" (CP 3). Another explained, "I don't always say 'Who wants to help me?' because it's just easier not to have kids in the kitchen, but it's something that I really want to do more of" (CP 2). Bringing children and parents together around food and cooking creates a hands-on, cross-generational learning opportunity. The intent of this project is to create one enjoyable activity that overcomes the identified barriers and addresses the problem of precious little time with family.

In order to enable parents and children to interact in a routine of cooking and eating dinner together, I developed a toolkit of *Meal Cards* titled *Family Mise en Place* (pronounced miz-on-plas). The title is inspired by the culinary term mise en place, meaning "everything in place." This is a particular structure that chefs engage in where they gather all necessary utensils and ingredients, and chop and prepare the food before they begin to cook. My project parallels this process. Recipes are divided into three stages—*Gather*, *Prepare* and Cook—which are each reflected in the name of the cards (Figure 0.1). The first stage *Gather* illustrates

[1] Participants are coded to protect their identity and are divided into three categories: Current Parent (CP), Empty Nester (EN) and six- to ten-year-old Child (C).

ingredients and utensils. The next card instructs families how to *Prepare* ingredients through chopping and measuring in groups. Ultimately, everything is assembled to simplify the final stage, *Cook*. This organization invites families to perceive new ways of cooking and eating with one another through the set of *Meal Cards* that structure their weeknight experience. At the heart of this project is the understanding that, throughout history, humans have connected through creating and sharing food. Enabling families to cook healthy food together is a step towards creating a sacred space where families learn about food and about each other.

Figure 0.1 *Meal Cards*

This thesis project looks at how design can help parents and young (six- to ten-year-old) children overcome barriers to preparing and sharing wholesome, nutritious meals together. An underlying assumption of this work is that families who feel in charge of preparing and sharing quality foods will also be less vulnerable to underlying problems in food culture, such as fad foods, food as entertainment, and limited ideas about nutrition. Michael Pollan describes the issue as the "American paradox—that is, a notably unhealthy people obsessed by the idea of eating healthily" (Pollan 2007, p. 3). Scientist and social theorist Gyorgy Scrinis also questions our cultural fixation with food's nutritional elements (calories, fat, etc.) in favor of distinguishing food's health based on the level of processing it has undergone. He uses the term nutritionism to describe the current paradigm. "Nutritionism is defined as where food is predominantly understood in terms of its nutrient profile and at the expense of

other ways of understanding and contextualizing the relationship between food and the body" (Scrinis, 2007, p. 544). Carlos Monteiro studies the epidemiological patterns of health and nutrition. Looking at the nutrient density of processed foods, compared to unprocessed, he observes "diets containing almost no fresh foods, are hardly compatible with survival. […] Diets that include a lot of ultra-processed foods are intrinsically nutritionally unbalanced and intrinsically harmful to health" (Monteiro, 2009 p. 730). The historical context for the social and ecological impact of the North American food system is further discussed in chapter two. This one small act of families cooking together on a regular basis might attenuate underlying health problems caused by contemporary food culture, and also influence a ripple of positive change throughout the currently unsustainable global food system.

There are also systemic problems in our food production system. If families collaborate and learn about healthy foods together, they might begin to demand a shift in how we currently produce food in the system of industrial agriculture. Current modes of mass industrial food production are recognized by the United Nations to be one of the leading contributors to global warming, eutrophication, ecosystem toxicity, topsoil depletion, and water depletion (United Nations Food and Agriculture Organization, 2007). In addition to departments within the United Nations—like the Food and Agriculture Organization (FAO), the Office of the High Commissioner for Human Rights (OHCHR) and the United Nations Conference on Sustainable Development (Rio+20)—other organizations such as the World Health Organization (WHO), World Organization for Animal Health (OiE) and the United States Department of Agriculture Council on Sustainable Agriculture (USDA) note the damaging impact of the global food system on the biosphere (De Schutter, 2011; Food and Agriculture Organization of the United Nations, World Health Organization, & World Organization for Animal Health, 2003; United States Department of Agriculture Council on Sustainable Development, 2008; United Nations Rio+20, 2012). Our food system is unsustainable, and an impetus is needed to create change. Although the toolkit does not specifically address the global food system, research into industrial agriculture and cultural food trends is implicit in the design of the *Meal Cards*. Recipes use unprocessed food ingredients and parents are given further information in instructional *Skill Cards*. This enables the family to further discuss issues concerning where food originates.

The development of *Family Mise en Place* involved an integrated process that blended literature review, participant-centered design research, and iterative prototyping. These three modes of engaging with the problem worked together to build an investigation and subsequent design system that addresses the needs and desires of busy families. Within the home, the *Family Mise en Place* system creates a space for them to not only cook nutritional meals but also develop new skills, learn about each other, and build a family routine that shifts their behavior towards a more positive and sustainable impact on the environment.

Chapter One:
Framing the Design Opportunity

"I think the first place that children experience community is around the table with their family."

-Participant EN 2

Chapter One:
Framing the Design Opportunity

Families can develop a shared space to explore cooking and eating with one another. *Family Mise en Place* connects food and sustainability by helping busy families build the habit of cooking together. Often, the most ethical and environmental food choices are often the most healthy to eat (Pollan, 2009, p. 2). By providing regular interaction with True Foods, parents and children can investigate personal and ecological health together.

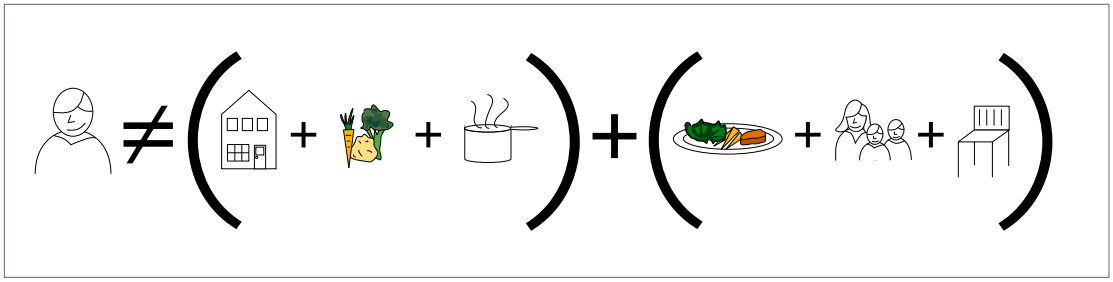


Figure 1.1 *Stating the problem for families*

The barrier being addressed is that North American families are not regularly sitting down to enjoy home-cooked meals made with fresh, whole, True Food ingredients (Figure 1.1). For *Family Mise en Place*, True Food is a class of unprocessed whole foods or minimally processed whole foods whose nutrient properties have not been altered (Monterio, 2009). Literature and participant research support the notion that the valuable routine of eating home-cooked meals is threatened by the pressures of modern life (Beech et al., 2004; Pollan, 2009; Snyder et al., 2007; Thackara, 2006). The end-of-day routine for families can look like:

1. Parent drives to pick children up from school, afternoon activity or daycare, sometimes from multiple locations.

2. Family arrives home in early evening. They are all exhausted and hungry from a long day.

3. Parents have to figure out what to feed the family. Decide either to get a type of take-out or put together something quick based on what the kids will eat.

4. Dinner time together either at the table or in front of the TV. Mealtime challenges include picky eaters and behavioral issues at the table.

5. Kids have homework to do, which often requires help from a parent.

6. Bedtime routine of pajamas, brushing teeth, reading a story. This often lasts much longer than expected.

7. Parents have end-of-the-day chores such as picking up the house or preparing lunches for the next day.

According to John Thackara, a busy, rushed lifestyle does not accomodate space for holistic health (Thackara, 2006). Participant research for *Family Mise en Place* supports theories that mealtime is where children learn lifelong lessons about food. Equally important, preparing food and dining with one another create a sacred space for families to learn together.

Mary Spagnola and Barbara H. Fiese are psychologists who have written extensively about the impact of family routines, particularly mealtimes, on a range of childhood developmental factors. They state that "embedded in the complexities of day-to-day family life, family routines and rituals provide a context for the development of children" (Spagnola & Fiese, 2007, p. 285). Specifically to the importance of routine interactions with food, Spagnola & Fiese observe that "over time routine gatherings, such as mealtime, form the foundation for rituals that are built upon emotional connections" (Spagnola & Fiese, 2007, p. 290). One participant from my research put it this way, "Part of my belief is that something truly spiritual happens when people sit around a table to eat" (EN 2). Schedules and eating habits have changed for families, but the importance of eating together remains the same.

Families experience this barrier because of cultural, time pressures. These behaviors also support the North American food system, which is damaging the environment (Figure 1.2). "Food production isn't separate from energy; it isn't separate from natural resources; it isn't separate from political and economic systems" (Roberts, 2008, p. 61). Systems of food production are complex and intertwined, involving social, cultural, and ecological factors to impact one another. Therefore, there is a need to improve the sustainability of our food choices. According to the United Nations Food and Agriculture Organization, one-third of the global greenhouse gas emissions contributing to global warming is from the global food system (United Nations Food and Agriculture Organization, 2007). Harmful processes include transportation, toxic nitrogen fertilizers contributing to soil erosion, food waste and overproduction, packaging, and industrial food processing (Figure 1.2).

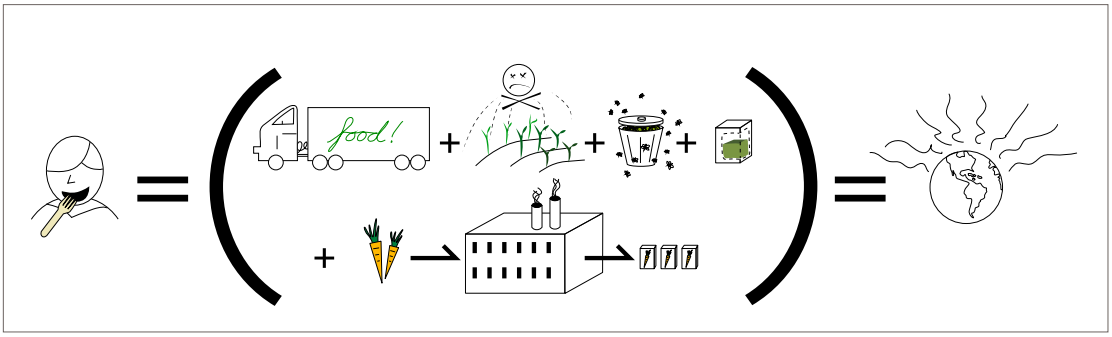


Figure 1.2 *The systemic problem*

A robust design strategy is necessary to address the environmental problems caused by the current food distribution chain. It must use emergent and innovative practices. "Routine design operates within existing paradigm, whereas inventive design proposes a new paradigm that may eventually replace the old" (Crilly, 2010, p. 60). *Family Mise en Place* responds to this challenge through combining theories of design and learning with participant research. Based on initial interviews and surveys, it became obvious that *Meal Cards* could provide a structure and potential solution to both the social and environmental concerns related to family cooking. This thesis will primarily focus on these cards and how elements of content, form and style contributed to their design. These cards establish a scenario in the home where families can be empowered to shift their experience of weeknight cooking.

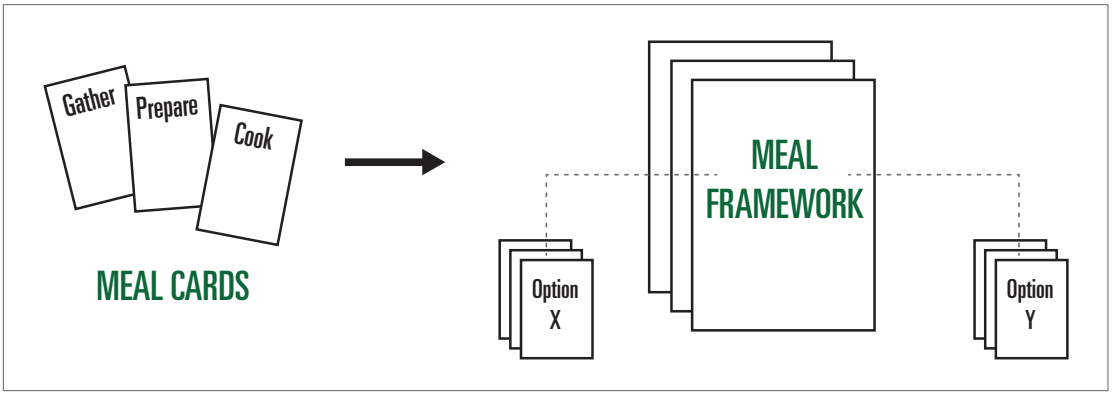


Figure 1.3 *Meal Framework*

A toolkit of *Meal Cards* was used as an ethnographic research probe. This was a method of isolating and testing aspects of the final outcome. *Family Mise en Place* contains a system of elements; the individual *Meal Cards* belong to a *Meal Framework* (Figure 1.3). Each framework is a collection of cards that include the main meal as well as options to customize the meal. Every component of the meal utilizes the *Gather, Prepare, Cook,* structure. The system also includes *Storage* for the cards (Figure 1.4) and a *Display* for optimal viewing of the cards while cooking (Figure 1.5).

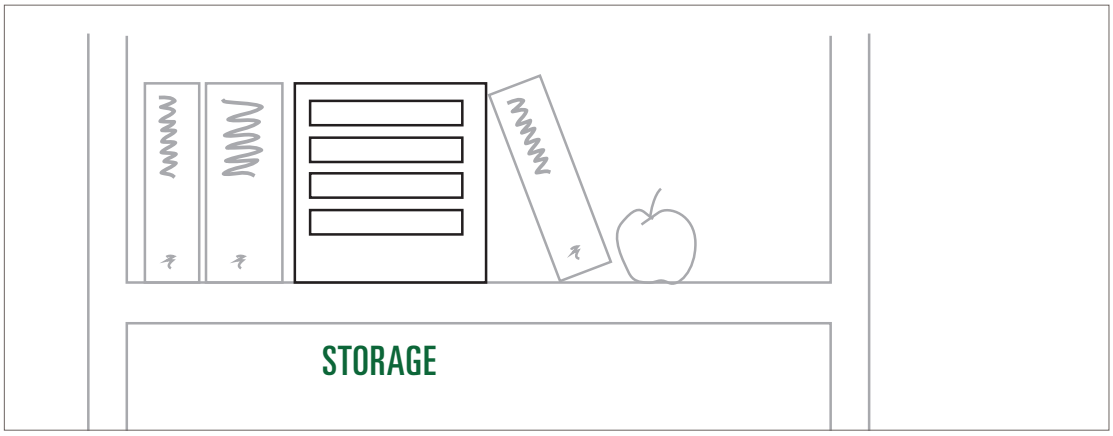


Figure 1.4 *Storage for Meal Cards*

Successful implementation of *Family Mise en Place* includes parents and children understanding where their food comes from and how it gets to their home (Figure 1.6). Families work together on busy weeknights to make True Food meals with the *Meal Cards* and eat them as a family. In addition to the physical space, there is a relational context where parents and children come together to prepare dinner. They would share in a time of cross-generational learning and dialogue with one another to build family narrative.

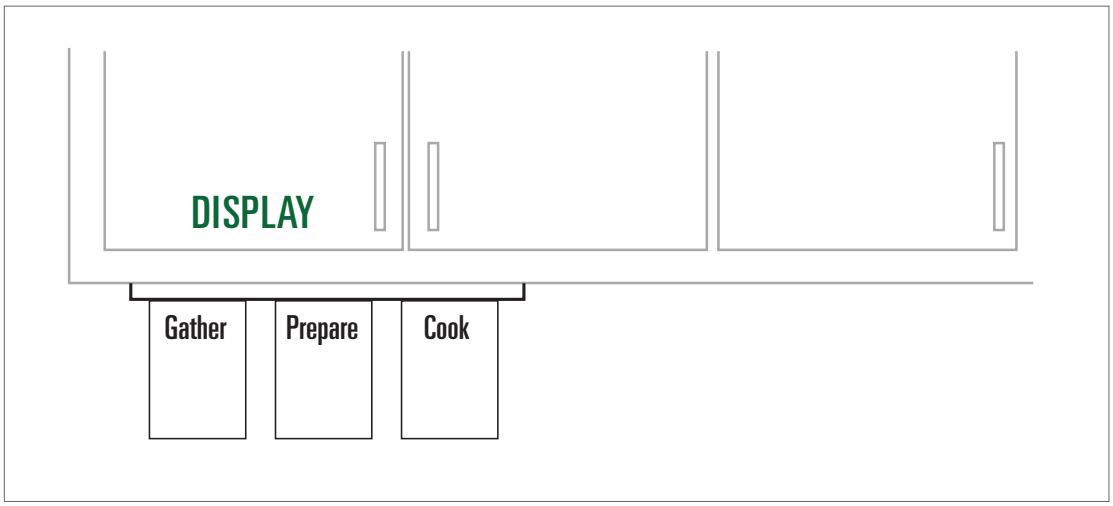


Figure 1.5 *Display of Meal Cards*

Family Mise en Place provides parents with tangible tools and activities to align their lifestyle to their identity and values. Sometimes it is difficult to pinpoint the small actions that lead to undesirable habits, such as not having time for a family meal. "Habitual and routine behavior contributes to the [...] gap between environmental and social values and everyday interaction

with products" (Bhamra et al., 2009, p. 4). My participant research has identified minor adjustments families can make during mealtime to move toward habits that better reinforce their values and desires. In order to make sense of the intricacies of the role food plays in a family's life, theories of systems thinking informed methods of discovery. For addressing the context of parents and children learning about food and cooking together, *Family Mise en Place* is a holistic response to this multifaceted challenge.

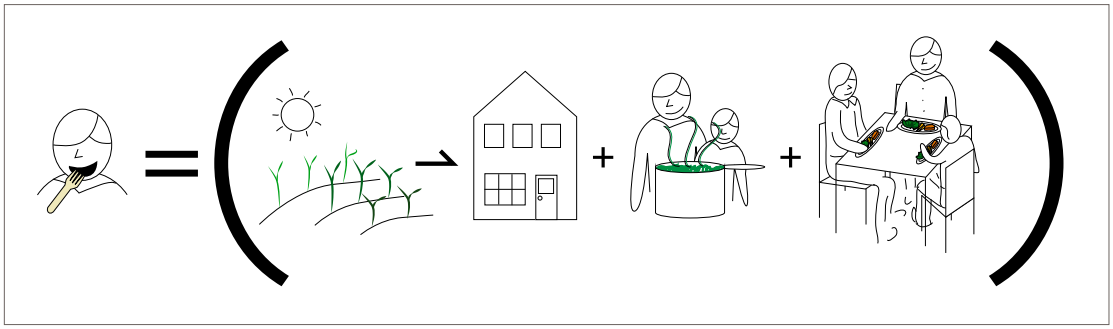


Figure 1.6 *The ideal scenario*

A Systems Approach

Systems thinking was used to understand the complexity of family mealtime. This method unpacks a problem holistically and finds the actual root causes to address with a design solution. A system is an "interconnected set of elements that is coherently organized in a way that achieves something," says Donella Meadows—the author of *Thinking in Systems* (Meadows, 2008 p.11). This means that when you view the whole system, you experience something greater than any combination of individual elements or connections. Systems thinking was used as a research method for understanding the complexity of the industrial food system and the role of food in the daily life of families. Techniques of diagramming and mapping demonstrated how individual elements within the system are connected and related.

Systems thinking was also explored through attempts to design a solution that is itself a system. These types of solutions are often Product Service Systems which typically include specifically designed services along with the products. Ezio Manzini calls it "planning activities whose objective is a system" (Thackera, 2006, p. 19). Rather than creating a single product, the objective is to design the user's experience with the product or service, considering how they would engage with the system throughout the products lifetime. Details of how this thesis integrated systems design will be explained further in this paper.

Limitations and Scope

When dealing with systems, it is necessary to choose the amount of complexity to address (Meadows, 2008). The problem at hand could be approached at many different scales. The relationship of the agricultural system and the consumer could be explored. This work could challenge the industrial unpackaged food business directly. One could also choose to focus on the material cycle of restaurant takeout containers to encourage more sustainable packaging without challenging the family context of time. Counter advertising could be designed to expose misconceptions about food being taught through media. There are many places to intervene and design for change within this system. I am choosing to focus on the family dynamics in household kitchens during mealtime.

Family Mise en Place does not directly address choices made at the grocery store, focusing only on time spent in the kitchen. This approach has an impact on the system that is bottom-up, one family at a time. Culturally, there is an underlying shift in this direction. This project can maximize on a greater social movement of individuals seeking to explore the relationship to food, the land, and community.

I am limiting the scope by focusing on the interactions between two user groups: parents and children aged six to ten. The routine of cleaning up the kitchen, although important, is outside the scope of this research. Because the goal is to get families to cook together, my objective is not to dictate what families should eat. The structure of *Family Mise en Place* introduces a level of awareness to the health and sustainability of food through encouraging whole, unprocessed choices. Although suggestive, foods with this system should not be prescriptive (Just and Wansink, 2009, 2012). This is a design endeavor, not an exploration into fields of scientific nutrition or gastronomy.

Chapter Two:
Contextual Positioning

"As a relatively new nation drawn from many different immigrant populations, each with its own food culture, Americans have never had a single, strong, stable culinary tradition to guide us"

- Michael Pollan

Chapter Two:
Contextual Positioning

Where our food comes from and how it gets to our table is a culturally relevant topic. The historical context of this systemic problem is rooted in the industrialization of North America. Understanding our history provides insight into developing a successful design strategy. In order to address the system surrounding food and families, it is crucial to first unpack how society has arrived at the dilemma of dependence on processed, industrial food. One parent responded in the survey that one of her biggest challenges during grocery shopping was "finding pre-packaged items that [were] of decent nutrition for [her] kids to have in their lunches" (CP 1). Focusing on the convenience of packaged food is evidence of the problems disconnecting us from the foods we eat. Building a habit of using whole, unprocessed True Foods and making cooking a collective family activity will lead to the necessary shift in relationship to food.

Background & Historical Context

Investigation for *Family Mise en Place* examined the interconnections between historical and social themes in North American society. Data was collected from sources in Canada and the United States and it was found that food patterns in both countries are similar. In both cases, notions of convenience trump culinary tradition. The literature surveyed builds the story of how the dialogue of food and sustainability has shifted since World War II. "The growth of the food processing industry in the decades after World War II was part of what some scholars have called the 'Consumer Revolution,' in which food, like so much else in modern American life, was reengineered to maximize choice, speed, and convenience" (Paradowsky, 2011). Since the 'Consumer Revolution,' there's been a shift in how families form ideas about nutritional values from internal family tradition to external science and marketing influences (Pollan 2009, p. 3). According to a survey conducted in 2000 by the American Dietetic Association, "Forty percent [of U. S. Consumers] claim they know they should be eating a healthy diet but aren't" (Morris, 2000, p 1). Michael Pollan describes this as the "American paradox—that is, a notably unhealthy people obsessed by the idea of eating healthily" (Pollan 2007, p. 3). Consumption patterns today are a byproduct of this post-World War II food system.

Trends are a reflection of a cultural attitude towards food and another sizeable indicator of priorities. Consumer research on food trends reveals multiple themes on health and environmental factors such as functional foods, weight control, health value, sustainability, and the relatively undefined idea of 'local.' There is also a strong force of trends that reveal

perceived barriers to health and sustainability. Food trends demonstrate that buyers value ease and speed of preparation, which typically come in the form of processed, packaged foods. (Hebert, 2011; "Knowledge Insider: Consumer Trends," 2009; Morris, 2000; Rehfield 2000). Diane Morris uses the term eatertainment, referring to the trend of food as entertainment value. "This trend may have major, long-term implications for food and nutrient intake among children, because the focus is almost exclusively on the pleasure of eating (having fun), while the purpose of eating (ensuring an optimal intake of essential ingredients and other compounds that benefit health) is virtually ignored" (Morris, 2000, p. 5). Moreover, "as a relatively new nation drawn from many different immigrant populations, each with its own food culture, Americans have never had a single, strong, stable culinary tradition to guide us" (Pollan, 2007, p. 5). Lacking a foundational food culture generates a problem for North America. This has opened the door for suggestive marketing messages to influence families' food choices towards processed food through purported health claims.

The term True Food is being used in this thesis as a deliberate response to the cultural fixation on nutrient elements and "functional foods." The industrial food system uses processing and packaging to market health claims. This system involves enhancing or fortifying processed foods with nutrient additives and then advertising the additional health benefit such as "lowers cholesterol." Gyorgy Scrinis says that:

> "One of the characteristics of the nutritionism paradigm is that, by focusing on food at the level of its nutrient and biochemical composition, and on the quantification of nutrients as the primary means of evaluating the relationship between food and the body, it transcends and blurs other important qualitative distinctions, such as the distinction between processed and unprocessed foods"(Scrinis, 2008, p. 545).

For *Family Mise en Place*, the level of processing is examined to determine a food's value towards health and sustainability. I propose the designation of minimally processed whole foods defined by Professor Carlos A. Monteiro be adopted to the term "True Food." He describes how this class of food consists "of whole foods that have been submitted to some process that does not substantially alter the nutritional properties of the original foods which remain recognizable as such, while aiming to preserve them and make them more accessible, convenient, sometimes safer, and more palatable" (Monteiro, 2009, p. 729). Minimal processing includes activities such as cleaning, freezing, drying or bottling but not extracting, adding or altering the substance. Michael Pollan uses the term "Pastoral" to distinguish unprocessed foods from the industrial chain of processing and would categorize this minimal processing as "Supermarket Pastoral" (Pollan, 2007). Pollan is critical of the industrialization

of organic and natural foods but the reality is that this category of foods is more accessible to families. Relying solely on unprocessed foods outside of an industrial supply chain is also less realistic when looking at the global food supply (Roberts, 2008). True Foods, by this definition, provide an alternative to processed foods that are still accessible and realistic for busy families.

Family Mise en Place recipes primarily utilizes True Food ingredients so that families can become familiar with using minimally processed ingredients when cooking. Monterio summarizes his recommendation that "the best dietary advice is to base diets on fresh and minimally processed foods, and on dishes and meals made up from such foods with the addition of refined ingredients extracted from whole foods" (Monterio, 2009, p.731). To support this habit, *Meal Cards* ingredients are selected on the principle of True Foods.

Precedents & Market Research

In addition to historical themes, there are presently organizations and products contributing to the conversation about food and families. Precedent research has focused around three main categories: cross-generational learning, market research of products geared towards food education, and North American movements around food and agriculture.

Cross-generational Programs

First, the cross-generational precedents around food are primarily academic programs that engage groups by inviting them to university events. Cross-generational programs often focus on field environments, not households. Some universities host programs to teach practical aspects of farming and agriculture. Examples of these are University of British Columbia's Intergenerational Landed Learning project and Harvard University Hospitality and Dining Services Food Literacy Project. In these community outreach programs, learning takes place on-site but does not provide lasting impact on the participating families' behaviorin their homes.

Another example of a cross-generational learning project is the Dublin City University's Grandmother's Day. This event encourages grandmothers to gather their grandchildren and teach them a skill, such as baking. The day is promoted as an opportunity to capture forgotten skills and wisdom of older generations. In collaboration with Alice Waters and Slow Food Ireland, the philosophy of this program is that "learning is a two-way street… a great opportunity for both the young and old to the instructors and learners" (Corrigan, 2010). Drawing attention to cross-generational learning is beneficial, but this is only a one-day event. *Family Mise en Place* seeks to build on these ideas through establishing habitual patterns

within the family's home. Another issue with these precedents is the academic context may be less relevant to families.

Consumer Products

The second significant attempt at education about food is found within consumer products. Design research for this project revealed how products that simultaneously emphasize fun and education for children are popular. I saw an emphasis on products that encourage kids to explore different aspects of food such as gardening, grocery shopping, and cooking. Examples of these products are Klutz© books, Dunecraft© gardening kits and Discover This© science kits. Children's books and kits often include engaging instructions and tools but do not emphasize cross-generational collaboration with parents. Products focus only on the child's learning. Additionally, recipes for kids typically do not address health or sustainability.

I purchased and experimented with many of these products as part of my research. The children's cookbook, *Cook it in a Cup!*© gives kids the parameters of a silicon cup to delimit the learning activity of cooking. The idea of limiting parts of the activity, to make it more accessible and manageable for kids, was intriguing. This allows room for play within the framework of the cups if kids want to experiment on their own once they are familiar with how this system works. Upon testing the recipes, the cup added beneficial structure to cooking but, like other products, is geared strictly to children. Recipes often fell into the trap of becoming "kid food", relying on lots of cheese or added sugar. They missed an opportunity to broaden the conversation of cooking to helping children make balanced, nutritious True Food choices.

Mollie Katzen's series of children's cookbooks addresses the problem of "kid food." Books such as *Honest Pretzels* target children but include many recipes with fruits and vegetables such as the "Tossed Green Salad." The concept behind these books is to promote a child's autonomy in cooking. Parental involvement is viewed as a final resource only when the child feels they need help, overlooking the benefits of cooking as a family activity. It also aligns with the notion of cooking as a recreation, not a necessary daily habit. Katzen's books offer a compelling precedent for how illustrations help kids relate to cooking, but the images are supplemental, therefore children still need to have foundational reading skills to participate. Katzen's books are effective in helping children develop an interest in cooking, but provide an oversimplified approach to the complex scenario of making dinner on a busy weeknight.

It appears that current products do not seek to respond to how a family engages with food and cooking at a holistic system-level. Products that deal with skills of cooking tend to focus

singularly on parent or child demographics. The context for inclusiveness of families and valuing collaborative input of all ages is more likely to be found in local communities.

Grassroots and Government Movements

The third and final type of precedent research explores how many North American activist movements around food and agriculture have surfaced in recent years. The USDA Agricultural Marketing Service reports a steep increase in farmers markets across the country. In 1994, there were 1,755 markets. In August of 2011, there were 7,175 registered markets, a seventeen percent rise over 2010 (United States Department of Agriculture Agricultural Marketing Service, 2011).

During the 2008 United States Presidential campaign, the Better World Campaign created an online forum called On Day One. This online community asked Americans to propose and then vote on the issue that the next President should make top priority for the first day of his presidency. First place in that contest was a video suggesting that the White House lawn be turned into an organic garden (Conan, 2009). Michelle Obama took the lead, and two months after the Obama inauguration she began planting the White House Victory Garden. She continued in this direction making children's nutrition a focal point through a campaign called "Let's Move!" (Hoag, 2012; Mulligan, 2009).

Smaller, but often more effective, initiatives are emerging in other areas across North America. Community-based movements are bringing neighborhoods together, providing opportunities for individuals to engage in the growing, preparing and eating food. Groups such as Kitchen Gardeners International and The Center for the Public Interest are providing information and organizing citizens in the movement toward the transparency of food production. These public efforts to transform food awareness have been successful in bringing issues of food to a national platform, but they do not facilitate methods to implement daily change in eating habits for families. The big picture scale of these movements may feel disconnected to individual families trying to find time and organization to cook weeknight meals.

A number of urban agriculture and food awareness programs exist in Vancouver. City Farmer began as a newspaper and now publishes online articles on urban farming. They also maintain a Compost Demonstration Garden and provide education to the public. FoodTree is an app that invites people to share photos of local food from farmers markets and restaurants to open the discussion about "real food." As food advocates, they are leading the organization of a database that encourages "open data" on food (Ashe, 2011). SOLEfood is an urban

farm located in downtown Vancouver that trains and employs inner-city residents and then distributes the food at farmers' markets and local restaurants. The many groups within the Vancouver urban agriculture movement provide comprehensive resources for awareness and education but for a family trying to find time to cook and eat True Foods, participating in or supporting urban agriculture may appear too extreme and out of reach, especially considering the time and financial limitations.

All of these efforts in bridging the gap between food and families have positive intentions, but fall short in creating something that helps families develop regular habits of cooking and eating True Foods. These movements demonstrate the public's desire to understand how and where their food originates. Acknowledging the landscape of current products and programs centered around food and community, *Family Mise en Place* responds to the complexity of this issue. There is an opportunity to address this problem through design that changes cooking choices and behavior in homes.

Design Context

In "Generations in Design Methodology," John Broadbent discusses the historical progression of the territory of design (Broadbent, 2003). Design has evolved to deal with larger, more social, issues. "Design is now less about creating artifacts and more about creating and staging a new, compelling story for people to experience" (Crossley, 2003, p. 35). Looking beyond material knowledge to elements that build culture, the work behind *Family Mise en Place* uses design to affect a cultural context. How children and parents relate to one another in the home is a topic that could be explored by many scientific fields. One thing that distinguishes design from any social science inquiry is "the legitimacy of its propositions is related to its ability for self reflection, communication and transformation" (Narváez, 2000, p. 44). As the territory of design becomes more complex and immaterial, the scope of the situation expands creating greater potential for impact. Reviewing the history of the position of design within culture, John Broadbent states "it appears… that consecutive generations of design methodology have been towards more complex, higher-level, and more influential roles for design in society" (Broadbent, 2003, p. 11).

Systems Design

Systems design is an indispensable part of the progression towards addressing social, environmental and material complexity. The best place to impact the system is altering the mindset or paradigm under which the system arises, driving behavior (Meadows, 1997).

Margaret Wheatley describes a cyclical, bottom-up process. She says creating change starts when one notices a problem, then takes small but progressive actions. Most importantly, the process of influencing change includes failure and perseverance. This process leads to exponential change (Wheatley, 2009). In order to create change, you must first understand the current system you are attempting to shift as well as what the desired system will look like if your design is successful. Systems can include material flows, Product Service Systems with services attached to material products, or intangible community systems.

Product Service Systems are a key part to the move towards sustainability "The transition to a light and sustainable economy means moving from an economy of transactions—selling and buying things—to an economy in which quality of services, not the acquisition of goods, begins our measure of well-being" (Thackera, 2006, p. 208). The goal of *Family Mise en Place* is to help families achieve the goal of "aligning [their] desires with the way [they] consumes products" (Jedlicka, 2010). Barriers can be addressed through examining multiple dimensions of the material system of food and the social system of family interactions. *Family Mise en Place* employed a systems thinking foundation to create a new scenario in the home, seting the stage for families to engage in the experience of cooking together.

Information Interaction Design

Nathan Shedroff coined the term Information Interaction Design to describe "the intersection of the disciplines of Information Design, Interaction Design, and Sensorial Design" (Shedroff, 1994, p.1). The specific field of Interaction Design is most often associated with digital technologies, but actually includes a broader context of how the designed elements engage with people using the product. In terms of *Family Mise en Place*, tactile exploration and experimentation within the experience of cooking provided a foundation to understand the role of experience in this work. Given the haptic nature of cooking and the relational dynamics of moving through a kitchen to cook together, it is determined that designing a physical interaction is more appropriate than a digital interface.

Family Mise en Place relies heavily on communicating information in the form of instructions. "The best information design acknowledges and uses the interactive nature of communication to convey meaning and heighten understanding among all parties involved" (Jacobson, 1999 p. 2). Information is simplified and made visually concise through the use of icons, a clear grid system and a limited color-palette. Recipes are designed so that children as young as 6 can understand the instructions and interact with cooking. It is essential to recognize and "emphasize that designers cannot design the subjective experience, only the context may be designed" (Battarbee, 2003, p. 730). Through employing multiple modes of design, many aspects of the experience were addressed and accounted for to create a cooking experience improved by design.

The physicality of the experience is built as a design consideration. "Interaction design is at the center of the new design space that has emerged in response to new communication technologies. It is a space where information surpasses form in importance" (Sanders, 2001, p. 5). This notion has applications beyond the scope of digital technologies. In order for *Family Mise en Place* to be successful, information about tools, ingredients and timing must be communicated in a way that it determines how the family interacts with the food, kitchen space and one other. Spacial interaction is an important component to the *Family Mise en Place* design because:

> "Information does not necessarily only come in the form of words and pictures. It comes through a coherent sequence and flow of events, such as moving through an environment, using a product or interacting with a person. The aim is for a more comprehensive and holistic view of the user experience" (McDonagh, 2004, p. 53).

The ultimate goal was to use subtle cues with physical cards that influence the intangible interaction a family has with one another. If this interaction is enjoyable, it can lead to building a pattern of behavior that consistently includes collaborative cooking with True Food.

Choice and Autonomy

Designers should be responsible for considering the behaviors that their messaging and products establish. "Good design research, aimed at solving a performance problem, often uncovers a social problem… design problems are not only technical, they are above all, human" (Frascara and Winkler, 2008, p. 12). The subtleties of designing for social problems mean solutions must provide choice and autonomy. "We need to make information available, help people […] understand new possibilities, and give them the tools to make their own decisions. But we can't change their behaviors for them" (Shedroff, 2009, p. 370). Particularly when it comes to kids, choice is imperative according to David R. Just and Brian Wansink. Both study Behavioral Economics in Child Nutrition Programs. They look at how small shifts in the display of choices within an environment can influence decision makers. Individual behaviors are connected to the larger make-up of a person's emotional intelligence (Goleman, 2006, 2011). "Building emotions in design involves careful attention to how relationships are built and the way people are involved in the process" (Crossley, 2003, p. 44).

Opportunity to make a selection is also an opportunity for individuals to learn. Building on the work of Just and Wansink, many parents who participated in my research described how their children reject instruction or being told what to do. They prefer the opportunity to learn through self-discovery. One parent stated, "[my child] really doesn't like to be told how to

do anything. She hates being instructed. She has to figure it out herself" (CP 1). Another parent commented that her son learns best "when he isn't aware that he's being taught something. If he thinks it's being fed to him [...] then there is a resistance to that" (CP 4). The Constructivist learning model recognizes this desire to learn through experience.The philosophy of Constructivism is based on the idea that we all construct our own meaning of the world through situations and experiences. In this project, a cross-generational approach is implemented, through looking into educational theory, so that the design responds to both parents' and children's desires to discover new knowledge.

Learning Models

Educational theories, such as Constructivism and Cross-Generational learning, can be paired with philosophies of design to establish new routines. This framework helps ask better questions when exploring the interaction being elicited. *Family Mise en Place* capitalizes on the interactions taking place in the kitchen: between people, the space, and the tools and ingredients they use. This is the developmental context and learning opportunity. The kitchen experience exemplifies bottom-up change and demonstrates the importance and effectiveness of storytelling in learning (Ryan, 2008). "Interaction design, which is essentially story creating and telling, is at once both an ancient art and a new technology. To have informational value, it must be organized, transformed, and presented in a way that gives meaning" (Shedroff, 1994, p. 3). An effective way to learn is through hands-on experiences. Because of the haptic nature of cooking, it is a suitable framework to explore Constructivist ideas about sensory learning.

Constructivist

John Dewey laid the foundation for Constructivist philosophies. In his book, *Experience and Education,* he describes interaction as an interplay of internal and external (situational and environmental) conditions (Dewey, 1938). Further, he proposes that the experience of interactions is the foundation for learning throughout one's life. Dewey emphasizes a social process where individuals take active ownership for learning. Building on Dewey, other philosophers such as Frederic Bartlett, Jean Piaget and Maria Montessori developed the theory of knowledge that is "based on the premise that we all construct our own perspective of the world, through individual experiences and schema. Constructivism focuses on preparing the learner to problem solve in ambiguous situations" (Mergel, 1988, p. 2). Constructivist philosophy is overall, a way of understanding how we experience the world and are applicable to both formal curriculum and informal learning.

David Lebow makes the argument that the curriculum method of Instructional Systems Design benefits from Constructivist philosophies. Lebow's five principles of Instructional Systems can be applied to creating the context for informal learning in the home through an Information Interaction Design experience. They are:

1. "Maintain a buffer between the learner and the potentially damaging effects of instructional practices.

2. Provide a context for learning that supports both autonomy and relatedness.

3. Embed the reasons for learning into the learning activity itself.

4. Support self-regulation through the promotion of skills and attitudes that enable the learner to assume increasing responsibility for the developmental restructuring process.

5. Strengthen the learner's tendency to engage in intentional learning processes, especially by encouraging the strategic exploration of errors" (Lebow, 1993, p. 5).

These principles easily apply to *Family Mise en Place*. They build on each another to create a context for experiential learning that is fun as well as educational. Each principle is also particularly relevant to cooking. Looking at principle three, one has to cook to learn the skills required and become comfortable in the kitchen. Principle two is explored through giving each person in the kitchen autonomous tasks that contribute to a collective meal.

Lebow's principles are investigated as vital components of participatory research as well as a desired outcome of the *Family Mise en Place* system. Participatory design research activities were conducted to develop Constructivist methods of learning that resonated with parents and children. When asked how their children learned best, parents responded that hands-on was the best approach. "Kids love hands-on, right? And he's no exception to that" (CP 4). Another replied, "Doing, that's how he's going to learn and have a joy about it" (CP 3). *Family Mise en Place* responds to the parents observation about how their children learn.

Generating hands-on ethnographic cooking experiments created a learning environment that allowed participants to uncover fundamental cooking knowledge. Subsequently, the design responded to participants' experiences so that *Family Mise en Place* better functioned as a Constructivist tool. Waldorf educational methods were adapted for use in the home environment. Many aspects of these methods can be used to guide learning for parents and

children. Rudolf Steiner, the creator of Waldorf Education appears to have mastered the balance between strict and exploratory temperaments as well as engaging the emotional core of a person (Ruenzel, 1995).

According to Waldorf Education, the educational system follows developmental paths. For children under age 6, the emphasis is on the will. For ages 7-14, it is on the feelings and for those over fifteen, the emphasis is on the thinking. Each phase provides the building blocks for the next stage of development. "The healthy, well-educated adult, then, is not so much characterized by the intellect but rather is someone who comes to place the intellect alongside human will and feeling as essential aspects of the 'whole' human being" (Ruenzel, 1995, p. 25). Waldorf philosophy warns against over-emphasizing thinking and intellect in the development of children. Understanding experiences through how they engage the "hands, heart, and head [...] bringing into play the physical, emotional, and thinking dimensions of the human experience" (Ruenzel, 1995, p. 25). *Family Mise en Place* provides an opportunity to develop beneficial emotional connections between parents, children, food and cooking.

Figure 2.1 *Ten-year-old chopping peanuts*

Another aspect of this work inspired by Constructivist philosophy is placing value on the process or journey of cooking together, instead of purely focusing on how a meal turns out. The end goal of learning, whether about food or sustainability, is not as valuable as the act of cooking together. This is supported by the Constructivist value that, "means and ends become isomorphic and the desired results and preferred techniques appear as reflections of the same whole" (Lebow, 2010, p. 14).

Philosophies of Constructivism work to understand how the individual experience of interacting with objects, environments and others can lead to learning. An important part of constructing knowledge is the social experience of interacting with others. In *Family Mise en Place,* the interaction brings different generations together through the experience of cooking.

Cross-Generational

It is common knowledge that children benefit when their parents are involved in their education. "The notion of family learning is growing in significance. Policy-makers see parental involvement as a key way of enhancing children's educational performance" (Schuller, 2004 p. 10). What is often overlooked is that parents benefit from the same experience. Policy makers also see "collective learning through family units as a means of motivating adults to learn themselves" (Schuller, 2004, p. 10). Through learning together, parents and children share in a mutually beneficial social experience.

Communication is a fundamental building block for collaborative activities. "Designing an effective way of communicating ensures consumers know how to use the product efficiently through a range of design interventions such as providing information, choice, feedback or behavior spur" (Bhamra, et al., 2011, p. 436). Communication within cross-generational activities inherently creates a context of community and therefore, the design should foster collaboration. "We are beginning to see that collective creativity can be very powerful and can lead to more culturally relevant results than individual creativity does" (Sanders, 2001, p. 1). As families create meals together, they learn more effective ways to collaborate and communicate with the other generation.

Figure 2.2 *Eight-year-old measuring*

Because *Family Mise en Place* is a cross-generational project, it must take into account the way different age groups create meaning from interaction with objects and activities. Mihaly Csikszentmihalyi reflects on his generational research saying, "it is clear that the younger generations [respond] to the activity potential of the objects—to what they could do with them, while older generations [turn] to things that evoke contemplations, or preserve the memories of the events, experiences or relationships" (Csikszentmihalyi, 1991, p. 27). Through examining how the historical role of food has changed within the North American household, *Family Mise en Place* can better identify with each generation as well as mediate how the generations work with one another while cooking.

Reviewing past and current cultural trends helps to identify a momentous shift in awareness about the foods we eat and how they are produced. Systems thinking can help make sense of the complexity of the economic, social and environmental web that makes up the industrial food system. One factor that influences the food system is the fast pace of modern life in North America. Within this scenario are countless families who desire to make dinners on weeknights but often struggle with the time to make meals with True Food ingredients (Beech et al., 2004; Snyder et al., 2007). *Family Mise en Place* is a tangible demonstration of what happens when systems and Information Interaction design are paired with learning theories.

Chapter Three:
Research Framework

"Every member of the family needs to contribute to make a successful family."

-Participant CP 3

Chapter Three:
Research Framework

When two or more people cook together, an atmosphere of conviviality is fostered. “Cooking with your children forms a bond that will provide a life time of memories for both you and them” (Day and Bleimeister, 2011, p. xi). Studio exploration and prototyping methods were used to understand and respond to the complexity of how a family interacts with food.

The overarching questions that guided the research were:

- How can design enable cross-generational learning around food as a catalyst for personal and ecological well-being?
- Can pre-teen (6-10 year old) co-creators help to establish the right conditions for this learning to take place?
- What are the barriers for parents to engage in cooking activities with their children?

Figure 3.1 *Haptic Experiments*

A core problem being addressed is the perceived barrier that some families have against cooking True Foods because they might involve unreasonable time and effort. The desired outcome of *Family Mise en Place* is that parents transition from saying things like, “I don’t have time to cook or even take extra time to include my kids in cooking” to saying, “Cooking on weekdays is attainable because the kids are able to share the workload and contribute. Cooking dinner has become our nightly family time together.”

There is also an opportunity to engage children in cooking, establishing the home as a place of learning for both parents and children. The primary mode for testing ideas was through prototyping small parts of the system. Focusing on how one aspect impacted the experience was beneficial for expanding and testing larger components with more complicated prototypes. *Family Mise en Place* uses Constructivist activities so that everyone in the family can experience learning for themselves. A hands-on outcome requires a design process that recognizes the role sensory experience plays in our daily experiences with food. The explorations for *Family Mise en Place* began by conducting haptic experiments. One instance was where users felt their way through the texture of a recipe: starting with flour, sugar, then a butter mixture, finally kneading the dough. Participants were then able to eat and experience the texture of freshly baked pastry (Figure 3.1). It was a way to quickly experience the process of baking.

Involving parents and children as participants to the design process was key to building a system that addressed their true habits rather than perceived needs. "Observational research methods can uncover unconscious behaviors, habits, routines, attitudes and beliefs [...] illuminating the gap between what people actually do what they say they do" (Young, 2010, p. 19). Engaging participants revealed that users held the key to the solution for how design could impact how families experience of weeknight cooking.

Methodology

The methodology for this thesis is founded on a combination of literature, theory, participant research methods, and work produced in the studio. Theories of system design and Information Interaction Design come together to create a physical product that addresses the needs of families by facilitating shared experiences.

Methods of participant research and studio prototyping played off one another in a cyclical process. For example, a research session of cooking with a family influenced a revision of the structure of the activities. The refined activity was then used to cook with a new family and then revised even further. This became an iterative process of learning through participant research and studio work. Participant research was conducted in four phases: narrative interviews, a web survey, ethnographic research cooking with kids, and prototype testing (Figure 3.2).

First, narrative interviews were held in participants' homes to get a sense of the role that food played in each family. These interviews were with Current Parents with the goal being to understand the barriers to cooking on weeknights with their kids. Participants turned out to be a spectrum of families: from those who struggled around food and mealtime, to those

who were quite successful in integrating healthy views of food into their family dialogue. Some families even employed methods for including their children in weeknight dinner preparation.

"I'd say he is helping probably five times a week [with dinner]" (CP 4).

"If kids are around looking for something to do or getting on each others nerves then I will pull them in to help me" (CP 2).

"Every member of the family needs to contribute to make a successful family" (CP 3).

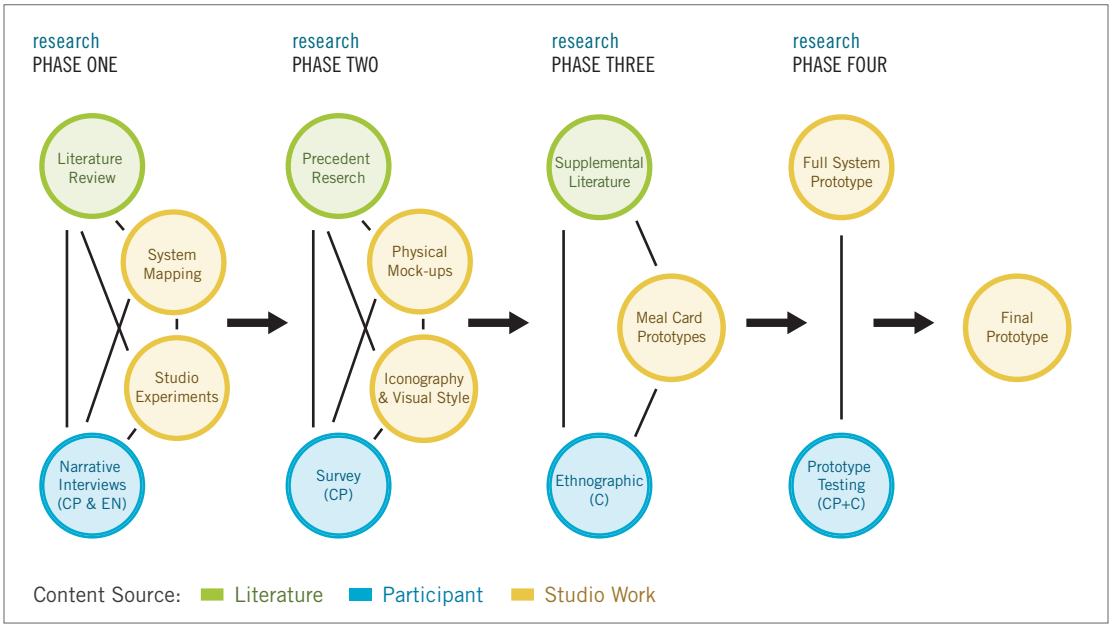


Figure 3.2 *Methodology of research phases*

Empty-Nesters were also interviewed. This group, now removed from the hectic lifestyle of raising children, was able to reflect on how food played a role in their family schedules when their children were young. Narrative interviews with Empty-Nesters helped identify the family dinner table as the pivotal center of family life. One participant reflected: "I realize that probably one of the best things I gave my children was dinnertime together. It's powerful, profound really" (EN 2). Many participants described the dinner table as the place for family dialogue and connectedness. It is also where food behavior is learned and where ideas about health and food are formed. "It was the one time we all got together, around the table" explained one participant (EN 1). Another described "Family dinner…there is something even more vital than [food], involving cultural values" (EN 4).

One way to bring families around the dinner table is through emphasis on the meal. These participant responses guided the direction of design refinement so that it facilitated meal planning. Both narrative interview and survey participants identified the burden of organizing as a barrier to home-cooked meals.

"I think scheduling can be an issue that interferes with meal time" (CP 2).

"It (our hectic schedule) requires a high degree of organization and collaboration within the family" (CP 4).

"Time-schedule [is a challenge], we've really changed what our after-school and evenings look like" (CP 2).

Analysis for the interviews employed color-coded index cards containing hand-written quotes from the recorded interviews (Figure 3.3). Each color card represented a different participant family. They were grouped and rearranged using topical filters that helped show similarities and differences between the families. This method is similar to the information sorting outlined by Gery W. Ryan and H. Russell Bernard in the article Techniques to Identify Themes in Qualitative Data. "[An] advantage to the cutting and sorting technique is that the data can be used to systematically describe how such themes are distributed across informants. […] Theme identification is one of the most fundamental tasks in qualitative research. It also one of the most mysterious" (G. W. Ryan & Bernard, 2000, p. 9). Most importantly, analyzing phrases helped identify barriers and opportunities for design. It also defined criteria for success through examining ways that some parents were successful in creating a healthy culture around food that engaged their children.

Figure 3.3 *Analysis of narrative interviews*

The second phase of participant research was an online web survey that investigated the family schedule. The purpose of the survey was to learn from successes and struggles they had around food and meal time. Survey questions identified opportunities to productively involve children in cooking on weeknights. Details of the family schedule, grocery shopping, and meal preparation habits confirmed some assumptions about the pace of family lifestyles.

For the survey, the sample size was smaller than expected (23 respondents) but did include some valuable qualitative data. Nearly all respondents valued the regular family meal, and many had established a routine that included home cooking on most nights. The survey indicated that the average meal prepared at home took 30-60 minutes to cook. Nearly one-third of the parents even indicated that children participate in weeknight cooking on some occasions. Many parents commented on meal planning challenges due to picky eaters and specialty diets.

"My son is a very picky eater, I usually make extra food for him, as he rarely eats what the rest of us do" (CP 16).

"Gluten-free diet (myself), Dairy-free (both myself and older daughter). Husband is pescatarian (mostly vegetarian who occasionally eats fish). Our meals are complicated" (CP 22).

For eating dinner, the survey showed a combination of either eating primarily at a dining table or occasionally in front of the TV. Most families' dinner meals lasted an average of 25 minutes. Parent responses demonstrated a narrow window of time between when all family members were home and when the children go to bed. Participants noted that this time often includes making and eating dinner, running errands, taking part in extra-curricular activities, finishing homework and doing bedtime rituals. Frustrations were expressed about weeknight mealtimes.

"I call 5-6pm the bewitching hour for parents…kids are hungry and jumpy and getting tired. You hate to just plop them in front of the TV to provide peace…Usually my girls 'do projects' before dinner. For them that usually means coloring" (CP 8).

*"I am tired and kids are hungry" (*CP 3).

"[It's] hard to hold a baby and chop vegetables at the same time… meanwhile older two are often fighting about something…" (CP 11).

*"Children complain about leaving TV to eat dinner, and we have trouble getting them to stay at the table without crying" (*CP 1).

The survey added further validation to the narrative interviews in demonstrating that family mealtime is a point of frustration. A cursory glance at families' schedules and comments from parents shows that dinner can be tremendously stressful, but research also shows that it does not have to be (Spagnola & Fiese, 2007). The narrative interviews and survey clearly identified both the need and barriers. During this research, I responded to the insight of my participants with studio experiments and prototypes. Design activities included storyboarding the scenario and developing low-res mock ups of potential responses to the issues that parents were identifying.

The third phase of research was ethnographic. It involved testing design prototypes by cooking with kids. Cooking sessions included bringing designed meal instructions, ingredients and tools into the participants' homes. This was the first iteration of the *Meal Cards* that became integrated into the final system. Children were given a verbal overview of the process and asked if they would like to cook dinner for their family. A meal was then cooked with the researcher and the children. Once the meal was completed, the family sat down to eat what the children had made. Emphasis was placed on the child as an equal partner and leader of segments within the activity. Each session was videotaped for analysis and reviewed to see how all parties moved about the kitchen throughout the duration of the activity. Analysis also included revisiting and revising parts the activity and the design of the *Meal Cards* for the next participant session. Kids learned techniques of cooking through fully participating in a meal and making decisions such as sauce flavors and starch options. "Learning to respect the creativity of users usually happens very quickly with a hands-on approach" (Sanders, 2001, p. 2). Participant Children were given creative opportunities through taste testing and adjusting sauce flavors. This ethnographic research was a test phase for implementing the *Meal Cards* for parents and children to cook together.

The fourth and final phase of participant research for *Family Mise en Place* included rounds of prototype testing. Parents and children were given a meal kit prototype and asked to cook together. The kits included instructions, tools, food and directions. These sessions were also recorded on video for future analysis. For this phase, each family had already participated in the ethnographic cooking activity using the *Meal Card* system that included *Gather*, *Prepare* and Cook. This familiarity with the *Family Mise en Place* framework reduced cooking time and led to more enjoyable experience.

The variety of methods employed by this thesis built a methodology that explored cross-generational collaboration, community building, the cultural relationship with food, and how to move toward more sustainable practices. Selecting a narrow scope (facilitating parents and children working together to make weeknight meals) was beneficial for deeply exploring the interactions in this context.

Research Questions

The process of identifying a manageable scope led to developing questions that guided the study in a direction that met the true needs of families. The main question addressed was this: *Can a design system help families involve their six- to ten-year-old children in preparing True Foods for weeknight dinners?* To support this question, three sub-questions were developed:

- How can design structure the experiences of parents and children when cooking together?
- What are the barriers preventing parents from engaging in cooking activities with their children, and how can design help overcome those barriers?
- How can pre-teen (six- to ten-year-old) participants participate in cross-generational cooking?

Assumptions are also an important component of building a foundation for investigation. These assumptions support the questions in providing a frame of reference. All of these assumptions are supported by literature, participants and experience prototypes.

- Cooking with True Foods connects people to planetary issues and helps them build personal health.
- Food is a significant focal point and builder of individual and shared narratives.
- Cooking together is frequently convivial.
- When two people do an activity together, such as cooking, they learn from one another.

Barriers were identified to prepare for potential roadblocks or negative responses to this research and the final outcome. First of all, food can be a very personal topic. Also, anything involving parents and children learning has the potential to critique a parent's methods. The research for *Family Mise en Place* sought to respect parents while providing for growth. The response from the participant activities was primarily positive and encouraging, but it is important to be sensitive and not assume that potential participants or users would agree with the premise of this project.

Families may perceive that their daily schedule is too busy to accommodate additional activities, which may prevent the adoption of *Family Mise en Place*. This barrier was unpacked through participant research. A primary benefit of conducting the narrative interviews and survey was to identify ways design could respond to the percieved lack of time.

There is also an underlying cultural problem of the emphasis on weight loss or weight management as a top role of food. This detracts from the value of making food communally and eating it together. This view of food causes people to focus inwardly, not collectively, about what foods to eat and where they originate. Media reinforces these ideals. Even programs that discuss family mealtime as well as sustainable aspects of food, such as Jamie Oliver's Food Revolution, do so as a side note secondary to the dangers of obesity (Oliver, 2011).

Rival interests may be found in challenging the expected roles of parents and children in society. There is a prevailing notion that the parents are always the main holders of knowledge and main overseers of all family activities. *Family Mise en Place* does not want to challenge the authority of parents but seeks to allow space for situational context where children are given responsibility and are contributing to their parents' learning (Just & Wansink, 2012; Ruenzel, 1995; Spagnola & Fiese, 2007).

A major factor for children that works against *Family Mise en Place* is marketed ideas of "kid food." Advertising and packaging sell a vision of what kids will and won't eat, fostering a common excuse for packaged and processed food to infiltrate the family dinner table. Recipes on the *Meal Cards* challenge notions of what kids eat through testing the concept that kids are more likely to try new foods if they have been a part of making them. In contrast to North America, the well-established food culture found in France, does not distinguish a child's food choices from adults.

> "There are no 'kid's foods;' kids eat what adults eat. […] Two-year-old kids eat blue cheese and braised endives with gusto, and talked (sic) about the food. That's a big part of the French secret: to engage kids with preparation of food, and discussing food. The main principle is you don't have to eat it all, you just have to taste it" (Druckerman, 2012, p. 17).

Even in North America, mealtime involves more than eating. "Within the structure of the meal, families discuss events of the day, share stories about the past, and make plans for the future, all while ensuring that members are well fed (and well-mannered!). Mealtimes provide opportunities to reconnect, organize, and structured dialogue" (Spagnola & Fiese, 2007, p. 286). Emotional development occurs for the children and families grow in unity through establishing a stable routine over time.

Studio Experiments

Before involving participants, the design process began in the studio. The project began with a focus on systems of community engagement and the role of food in culture. Within the topic of food behavior, a connected system was explored that included the physical production system of North American food as well as cultural notions of how an individual's emotional relationship with food is formed. Experiments started by looking broad and big and experimenting with a Product Service System.

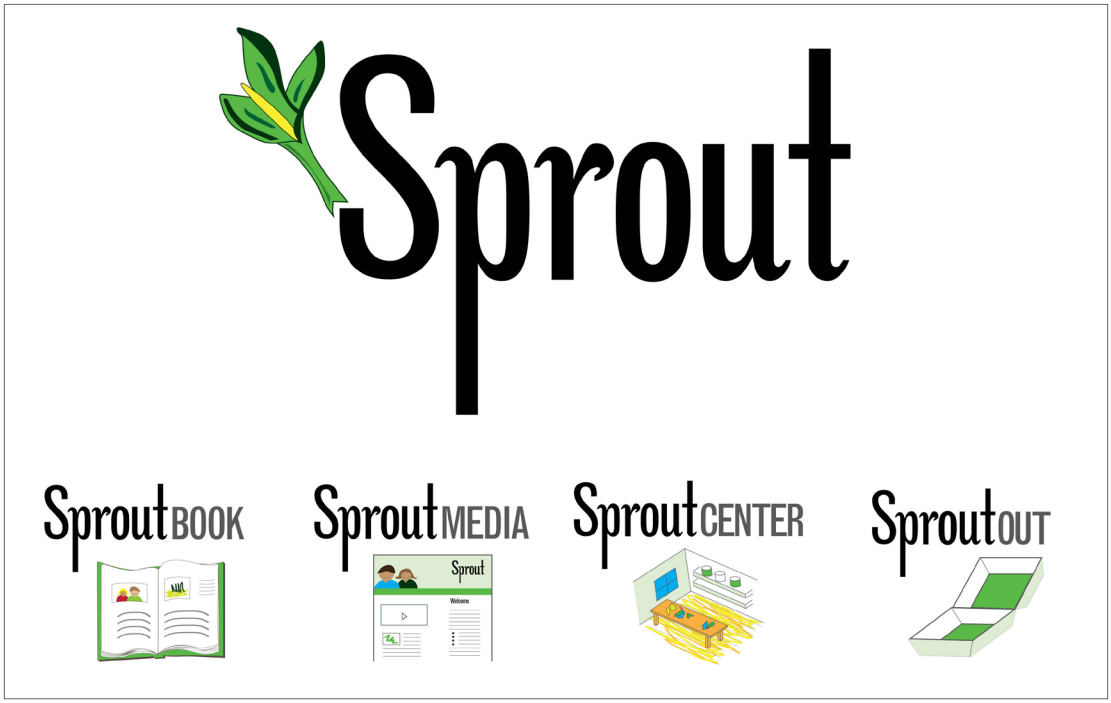


Figure 3.4 *Sprout*

From the beginning of figuring out the design strategy, the system-level problem was examined, as was how to offer a system solution that addressed the issue on multiple levels. One of the earlier experiments was a Product Service System called Sprout which contained four modes of engagement. From this, I was able to detail aspects of that system that I could work at in more depth. Sprout was based around products and services that helped communities to interact through cross-generational activities. In a process of delimiting the scope of this work, I choose to move forward to simply develop the activities the Product Service System was based around. Then, the singular activity of parents and children cooking together was selected as the key direction for continuing research, design and development. Cooking is viewed as an integrated part of transforming lifestyle, not a form of recreation or

entertainment. From this perspective, participant research was constructed to identify the point in the daily life where families had the most need for design to construct a more positive experience.

The narrative interviews helped to identify cultural shifts in eating and dining as a family. The survey provided information on the family schedule and how food is used in the home. Busy weeknights were identified as ideal scenario for intervention. Studio explorations involved scenario building, cardboard prototypes, system mapping, instruction design, and testing out ideas in prototype form. Learning from these studio explorations was then applied into cooking with kids.

Figure 3.5 *The setting of each station had all tools, ingredients and instructions prepared*

Figure 3.6 *Participants cooking in pairs*

Focusing on the experience and how instruction can manipulate that experience, a cooking prototype was created for my classmates in the studio. A portable kitchen was assembled to test out various construction styles to cooking a meal with others (Figures 3.5, 3.6 and 3.7). Classmates were paired together and each pair was given a station with ingredients, tools and a set of instructions. The instructions facilitated the team interaction and impact of the individual cooking experience. Styles of instruction and division of tasks were tested in addition to the ability to make a meal with the time constraint of 20 minutes. The activity was carefully planned and demonstrated how cooking can be easy, fun, delicious, nutritious as well as open a conversation about more sustainable food choices.

Upon reflection and conducting an analysis discussion with the class, we came to some conclusions. The first was that cooking is a shared activity that leads to conviviality, conversation, and a community spirit. This activity opened the opportunity for dialogue, storytelling and learning among teams that cooked together. The instructions gave each team a different dynamic. Some teams intentionally had to work together to divide the tasks, others had instructions that divided cooking in a way that facilitated supporting one another, and one group was given two sets of separate instruction that combined to create one meal component. Upon discussion, we confirmed that those who work together were more engaged in the activity. Those who had to work apart ended up more anxious about cooking and had a less enjoyable experience. A key finding in all circumstances was that cooking can be enjoyable, even for novices, when carefully planned.

Figure 3.7 *A team working together*

Through this experiment, some assumptions that I had about the best way to arrange instructions for cooking were tested. Some findings were:

- In every group, the list of recipe ingredients was integrated into the instructions in a sequential narrative format. Feedback confirmed that this method of following instructions helped make their cooking experience more relaxed and enjoyable.

- In groups where one of the partners was very inexperienced with cooking, the more skilled individual felt the need to monitor their partner.

- Some basic cooking fundamentals, that were assumed, needed to be explained for the inexperienced participants (things such as teaspoon versus tablespoon). This scenario alluded to a potential dynamic between parents and young children.

- In the simpler recipes, teams were more inclined to personalize recipes because they felt comfortable that they could add things without ruining the dish.

- With unfamiliar recipes, the teams were less confident in cooking and were wary about making mistakes.

Findings from the studio experiment validated the *Family Mise en Place* endeavor and influenced the direction of following experiments. This round of cooking provided cues that the way the information is laid out on the meal instructions is critically important. Flaws within the current display of recipes were identified and supported moving forward with restructuring the experience of cooking through focusing on the way tasks are divided.

Figure 3.8 *Another team working together*

Parts of the System

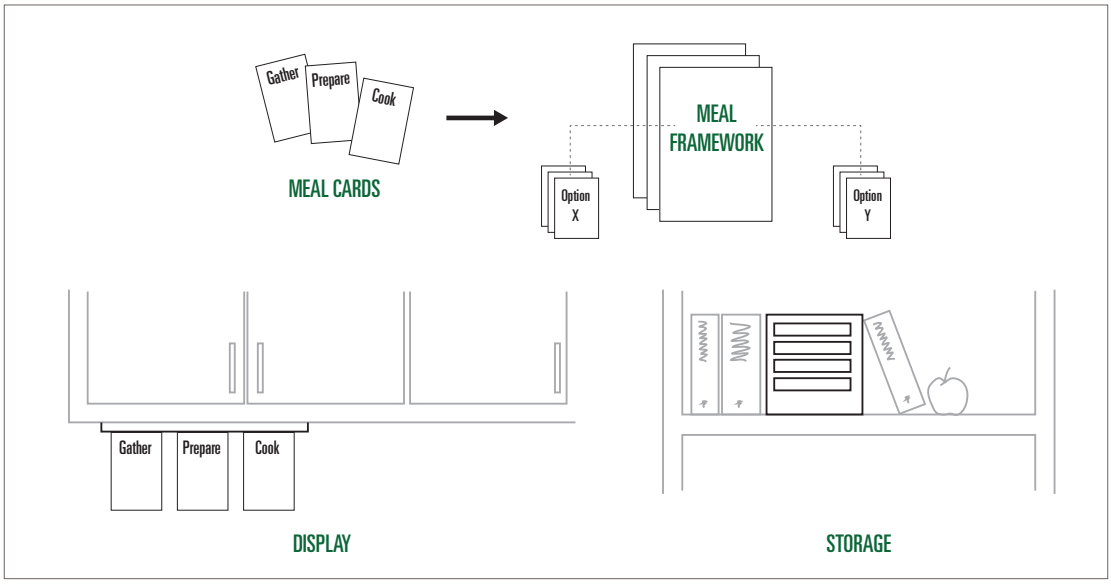


Figure 3.9 *Parts to the system*

Family Mise en Place comprises three parts; a *Display*, the *Meal Framework* cards and *Storage* for the cards for building a collection of *Meal Card* instructions over time. *Meal Frameworks* are the title for the entire meal. It is called a framework because the recipe includes options for families to navigate in designing their own meal. *Meal Framework*s are each based around a type of dish, such as Stir Fry, and provide choices for elements such as sauces, flavor profiles or starches.

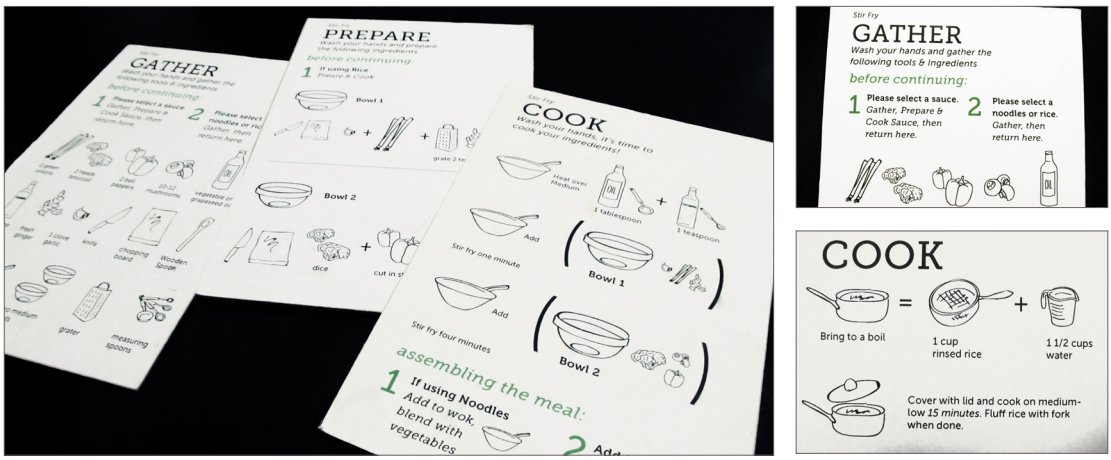


Figure 3.10 *Meal Cards*

Meal Cards divide the experience into *Gather* tools and ingredients, *Prepare* food and *Cook* an entire meal. The *Display* space publicly shares current meal information to facilitate participation from the whole family. *Storage* houses *Meal Cards* when not in use as well as the Instruction Cards and *Skill Cards*—which contain helpful tips on cooking as a family and a visual glossary of terms. Primary design attention focused around the *Meal Cards* and exploring their potential to shape the cooking interaction. As the cards developed, they began expressing the potential role of design to facilitate experience through instruction.

A pitfall of traditional recipes is they often include hidden preparation steps within the list of ingredients. Recipes also assume a base level of proficiency in the kitchen. The instructions in *Family Mise en Place* strips out all presumption in a tone that does not talk down to the novice cook. Based on participant responses, a key to families successfully making dinner at home and eating it together is planning. This thesis responds to that barrier through a detailed structuring of the meal.

To make recipes more accessible to children, the process of cooking a *Meal Framework* is divided into three steps on a series of *Meal Cards*.

- Meal preparation begins with *Gather*, finding all ingredients and tools then bringing them together in one location.

- Once everything is in its place, the next step is *Prepare*; this includes all chopping, mixing and arranging of ingredients prior to adding any heat. An important aspect of *Prepare* is that ingredients are grouped and filtered through the use of bowls or cookware that facilitate the simplest possible experience during the final stage.

- *Cook* includes the steps of making and assembling the meal. *Cook* is often as simple as "Add bowl one into pan, cook over medium 5 minutes. Add bowl two into pan…" and so on.

Dividing cooking into manageable chunks helps family members at all skill levels get involved and work together. This model demonstrates how "complexity can be made clear through effective organization and presentation […] Clarity includes the focus on one particular message or goal at a time, rather than an attempt to accomplish too much at once" (Shedroff, 1994 p. 9). By focusing on one phase at a time, cooking becomes clear and accomplishable by anyone.

Figure 3.11 *Dividing tasks using the Meal Cards*

As explained earlier, this construct of dividing cooking tasks is closely related to the French culinary method of mise en place. Although primarily utilized in professional kitchens, this philosophy of preparing all components in a meal is interpreted as a way to lower the barrier for children to engage in meal preparation. Involving children in the mise en place ritual is an entry point into cooking. I discussed the application of professional mise en place into a family environment with a chef. He described how "[kids] definitely should be involved in doing the mise en place because that makes them more responsible instead of just stirring the pot. You want more out of them than that" (Vandenbroucke, 2012). They are able to contribute with their current skills and then build up new skills over time, in partnership with their parents.

Another way to look at the concept of mise en place is a method for organization. Communication Design typically deals with the structure of information into an organized form. "Information Design addresses the organization and presentation of data: its transformation into valuable, meaningful information" (Shedroff, 1994, p.1). *Family Mise en Place* is an example of how the organization of data can translate to the organization of an activity and subsequent experience.

Not only is the information organized, but it also provides an opportunity for choice. Both Liz Sanders and John Thackara describe scaffolding experiences that provide frameworks

for individuals to act within. This is a shift from designing completed solutions to designing contexts for people to respond within" (Thackara, 2006). If you think of products, interfaces and spaces as being scaffolds on which ordinary people can create their own experiences, the design challenge changes" (Sanders, 2001, p. 5). Structuring the instructions of cooking into a framework provides space for choice and creativity. Behavioral economists David R. Just and Brian Wansink cite choice as the highest motivating factor for a child's change in behaviors in regards to food. "Self-attribution [is] when people feel as if they have freely and consciously made a decision, they take ownership of that decision and tend to have a greater enjoyment of the outcome" (Just & Wansink, 2009, p. 2). Subtle cues in how two options are presented can guide choices and build healthy habits.

Particularly with *Gather*, children can take ownership of the task and complete the first stage of preparation before the parents engage in the meal for the evening. David Lebow explains "environments that provide choice, minimize performance pressure, and encourage initiation tend to support intrinsic motivation, meaningful learning, and self-esteem" (Lebow, 1993, p. 8). Participant research revealed that children enjoy getting things from the refrigerator and cupboards as an act of establishing independence. One parent described the process her daughter goes through to get a snack on her own. "She will take out the stepladder, she will move it to the refrigerator, she will climb up the stepladder, pull out the container…she does it herself. I'm not giving [her] permission to do it, she'll just do it" (CP 1). *Family Mise en Place* responds by finding a constructive way for children to independently explore the cupboards in collaboration with their parents.

Figure 3.12 *A six year old using a food processor*

Flexibility and Structure

Building recipes that are designed for choice and flexibility is a challenging task. Parents experienced in cooking may feel comfortable experimenting, but often novice and average cooks depend on strictly abiding by a step-by-step recipe. This was evident in the studio cooking experiment where unfamiliar recipes or ingredients caused anxiety. Many aspects of cooking require explicitly providing instructions on the foundational steps and techniques of a recipe that are necessary to make the dish successful. The *Meal Cards* need to give a balance between setting families up for success and allowing self-expression and play. After showing the *Meal Cards* to the chef, he responded "*Gather*, *Prepare*, *Cook* is brilliant because as fundamental and as basic as you can is how you want to present cooking to [kids]" (Vandenbroucke, 2012).

This is where heuristic discovery is significant. In Understanding Comics, Scott McCloud describes the balance between providing content and allowing the reader to make the mental leap, filling in the gaps between frames. With the example of comics, "nothing is seen between the two panels but experience tells you that something must be there" (Mccloud, 1994 p. 67). Feeling ownership in the midst of graphical incompleteness allows participants to embody the ideas because they are presented in a way that provokes them to fill in gaps. There is a slim territory of liminal space where the design is robust enough to be trusted as authoritative and worthwhile, but not overly prescriptive.

> "Participation is a powerful force in any medium. Filmmakers long ago realized the importance of allowing viewers to use their imagination. The unfinished aesthetic creates the space for users to feel comfortable with their freedom to add, play and experiment" (Mccloud, 1994, p. 69).

The goal in this work is that the design takes the participant halfway and in completing the ideas, through experience the participant feels ownership over the activity. For *Family Mise en Place*, choice is achieved through a series of meal decisions. The weeknight dinner involves selecting a *Meal Framework*, such as stir fry or soup. Within each *Meal Framework* are a series of choices to compile the full meal. In the example of stir fry, the first *Meal Card* instructs families to select and make a sauce, then select rice or noodles. The timing of various choices is often integrated into the main *Meal Framework* to provide a cohesive experience and a successful final dish.

Building a Visual Language

Early on, it was identified that developing a visual language of iconography was an entry point for including children in cross-generational cooking. In the first cooking prototype, conducted in the studio space, different kinds of content were given specific type treatments to distinguish items like ingredients from measurements, and so on. One finding from the studio cooking activity was the notion that when I adjusted it for cooking with kids, children should have choices in the meal as well as the opportunity to lead.

Developing a visual style of type icon and structure was vital to the impact of the *Meal Cards*. "The use of images might be divided into three categories: as illustration; as evidence; and as heuristic" (Schuller, 2004, p.1). These icons illustrate necessary tools and ingredients as well as facilitate heuristic learning of new foods and cooking processes.

Figure 3.13 *Initial Display with hanging Meal Cards*

Specific ways icons can be used to imply instruction were explored in creating *Family Mise en Place*. To begin, meals were laid out using a range of type and layout variations within the constraint of the *Display* accommodating a hanging folded *Meal Card* as a way to open up my visual direction was to investigating iconographic styles. (Figure 3.13 The first set of *Meal Cards* used these highly polished icons (Figure 3.14) that did not resonate with both parents and children. They also did not imply a sense of experimentation in the kitchen.

Through this process, it became clear that it was necessary to create a cross-generational style of icon that communicated collaboration and playfulness for weeknight cooking (Figure 3.15). I worked with physical form of the *Meal Cards* in addition to layout, type and the experience

of instruction within the format. The structure of the elements and physicality of the *Family Mise en Place* system also reinforced theories of adoption and learning. The revised form of the *Meal Cards* suggests reassembling, choice, and personal investment, leading to a feeling of ownership of the activity.

Figure 3.14 *Initial icon iteration*

Figure 3.15 *Accessible icons used for prototypes*

For the *Display* system, participant research gave insight into my studio decisions. The obvious choice of the refrigerator as the interface was a nice place to start. Within the ethnographic cooking sessions, the placement of the *Meal Cards* was experimented with and observed. Cards started out adhered to the refrigerator in many homes as well as propping thick *Meal Cards* against the compost bin. In one instance, a thin paper card was moistened and stuck to the microwave at the eye level for adults and children. I observed how people moved about the kitchen while cooking, making it clear that more exploration for the *Display* was necessary. One finding was that the setting of the workspace is crucially influential when cooking with children. Because they were beginners, it was necessary to provide help, as well as monitor everything the children were doing.

Figure 3.16 *Watching a child read the Meal Card*

At first, too much attention was given to making the child a part of every single thing that happened in the kitchen (Figure 3.16). Then it was recognized that the goal of *Family Mise en Place* is to develop a partnership, a collaboration between adults and children. The adult is the driver of getting the meal accomplished and the skilled expert at most tasks. The child is vitally involved in accomplishing the meal but can start out with individual tasks and work up to leading as their skills develop.

In ethnographic research sessions, the children and I were able to work closely side-by-side because we had all of our ingredients and tools right in front of us. This meant I was easily able to accomplish separate tasks quickly while observing what the children were doing and

being available to help instruct (Figure 3.17). In turn, the proximity allowed them to observe what I was doing and imitate my techniques. This provided multiple opportunities for learning, such as teaching knife skills.

How the workspace layout facilitates collaboration is an aspect of *Family Mise en Place*'s success that is highly dependent upon the individual family's kitchen. I was able to work in a number of different sizes and arrangements of kitchens, and was able to figure out in each scenario the arrangements that would best facilitate chopping and preparing in a shared space.

Figure 3.17 *Setting of the workspace*

Given that this was academic research, the Research Ethic Board required an assistant on site to monitor for safety at every cooking session. On occasions where the research was done with multiple children, my research assistant, Rebecca, and I ended up falling into a balance similar to two parents cooking with their children. She was able to instruct and monitor safety while I kept all the components moving forward and cleaned tools and spaces. Navigating the balance between personally getting tasks done and facilitating the children's involvement in accomplishing tasks is tricky. This harmony could only be refined through many research phases of trial and error.

It was also difficult to balance productivity with monitoring the children, these solutions were found through iterations of the cooking activity as well. This discovery revealed that it was necessary make the instructions explicit. Stepping back to review how the format of the activity is presented led to developing the Skills Cards. These provide a space for refining

kitchen skills such as knife techniques and proper hand washing. The necessity for a clear set of instructions that demonstrate collaborative methods for including parents and children was also validated.

For the *Storage*, an earlier concept was to integrate the system into the family cookbook shelf. The initial iteration was based on modeling the scale after something that would be both familiar and dominant on the shelf. The Joy of Cooking is a standard book that is known for being authoritative and large in size. I first made a cardboard shape the size of the Joy of Cooking to give myself a frame of reference. I then used that scale to create a form that had a pull-out story-book of reference material and a space to accumulate *meal cards* (Figure 3.18). This studio exploration demonstrated that I needed to focus attention onto the *Meal Cards* first, and that the main purpose of the *Storage* system is to make the cards accessible and easy to find within the home.

Figure 3.18 *Cardboard prototypes*

Feedback Loops & New Routines

Research participants demonstrated satisfaction in the activities; they enjoyed the work together and connected with one another. At that point, the meal becomes an added bonus to the enjoyable time spent cooking. This is an example of a positive, constructive feedback loop for *Family Mise en Place* (Meadows, 2008). "Typically, experiences with high interactivity offer high levels of feedback and, at least, some control" (Shedroff, 1994, p. 10). The *Meal Cards* allow control through selecting components within each *Meal Framework*. Cooking is physically interactive while providing immediate, positive feedback of a meal to eat together.

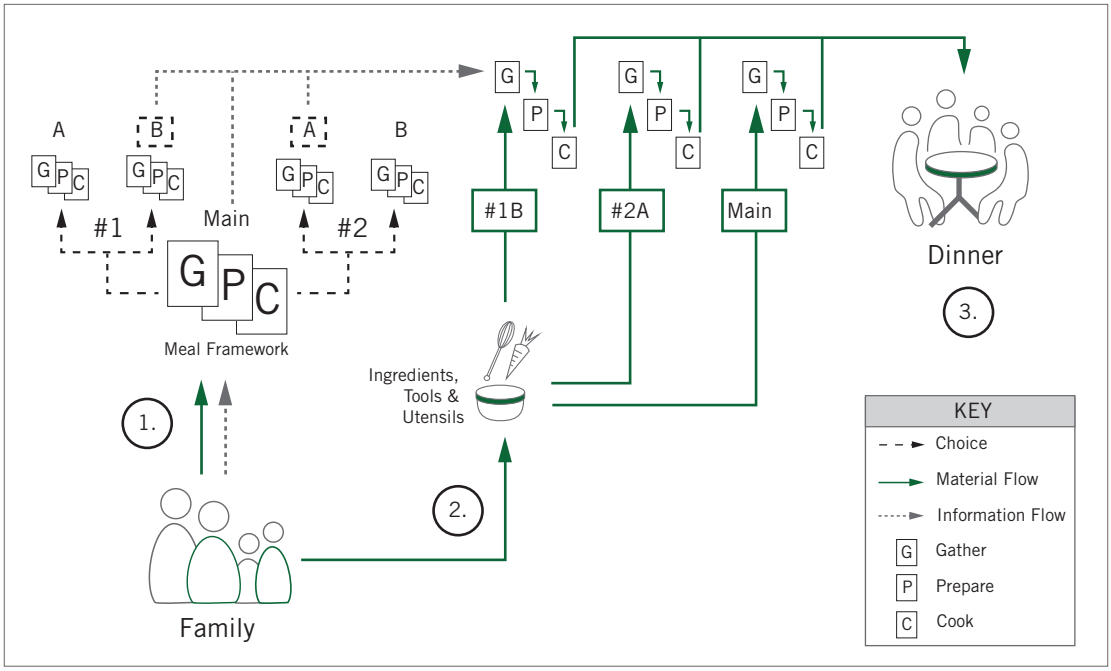


Figure 3.19 *Diagram of the Family Mise en Place cooking process*

Demonstrated in Figure 3.19, a family first selects a *Meal Framework* then chooses the A or B options within that framework. Then, they *Gather* the ingredients and tools, *Prepare*, and *Cook* each part of the meal together. Finally, they sit down to dinner and enjoy their meal as a family.

Satisfaction and removal of barriers was clearly evident in the feedback from one participant. The parent concluded, "[My son] was so excited and eager to participate in the preparation of a meal, and was very proud of his accomplishment when the process was completed. As [his] mother, I took note that he was a 'willing participant', and that I need to put forth additional effort that will enable him to work alongside me as we prepare the evening meal" (CP 3). As this family uses the *meal cards* repeatedly, they can choose a new combination or repeat a meal they enjoyed while improving it to fit their tastes as they cook.

Daniel Pink lists autonomy, mastery and purpose as the motivating factors for behavior (Pink, 2010). Nathan Shedroff puts it in the context of providing options to structure content for themselves. "It is precisely the ability to see the same set of things in different organizations that allow people to uncover the patterns in the relationships between these things. Ideally, people should be able to rearrange the organizations themselves or be provided with different arrangements so they can begin to understand these patterns for themselves" (Shedroff, 1994, p. 8).

Building new behavioral habits is a part of each family adopting cooking as a part of their daily lives. "Naturally occurring family routines and meaningful rituals provide both a predictable structure that guides behavior and an emotional climate that supports early development" (Spagnola & Fiese, 2007, p. 284). Providing accessibility for parents and children to contribute to interaction is key to adoption "because they enjoy what they're doing to the extent that the experiencing the activity becomes its own reward" (Locher, Overbeeke and Wensveen, 2010, p. 71).

Positive experiences can lead to adoption of *Family Mise en Place* and families regularly cooking together as skills develop. "The feelings, intuitions, attitudes, values, interests, significant relationships, and commitment of learners cannot be separated from the learning process" (Lebow, 1993, p. 10). The value of learning, within the context of where the knowledge or skills can directly be applied, contributes to the experience created by this project. For *Family Mise en Place,* this means learning about food in the context of cooking. Also, it means learning about building the family dynamic through time spent together. "Repeated family gatherings offer the opportunity to create strong emotional bonds and an investment in maintaining connections into the future" (Spagnola and Fiese, 2007, p. 6). Consistently problem solving the weeknight dinner as a family provides the context for this emotional learning to occur.

Deep understanding develops through repetition, movement, rhythm, sustained concentration and storytelling that creates a heart connection to the material. This mirrors Rudolph Steiner's Waldorf education ideals featured in Waldorf Schools. In my research, many people who enjoy cooking and have been successful in involving their children in weekday dinner preparation employ Rudolf Steiner's methods in the act of cooking. The family meal is a catalyst for dialogue and interaction (Shedroff, 1994; Spagnola & Fiese, 2007). This work demonstrate how planning intentional activities can help a family transition to a consistent lifestyle of health and sustainability. The goal of these activities is that the action of parents and children cooking together through physically moving around the kitchen space will build a positive emotional experience, leading to adoption of the system on a regular basis.

Chapter Four:
Data Analysis

"[The kids] seemed to be naturally interested in food and preparing food."

-Participant EN 4

Chapter Four:
Data Analysis

Family Mise en Place incorporates primary data from participants with literature and making work in the studio. Analysis of the information occurred throughout the research process and often included space for reflection. The data was interpreted by reviewing the images and video from participant research to observe new insights. Analysis was also done in the form of studio response and writing. I maintained a critical process-book on my website throughout the entire program of study. (These posts are located at www.karenwhistler.com/masters-thesis). From the outset, the research was defined to ensure triangulated data by utilizing multiple methods of collecting data.

The research methodology was validated through the four research stages and a review of *Meal Card* prototypes by a professional chef. The design of *Family Mise en Place* is heavily influenced by many types of participant involvement to ensure that the actual needs of families are being addressed (Sanders & Stappers, 2008; Sanders, 2001). Understanding family behaviors and how people feel about their schedule through multiple modes of observation was valuable.

Triangulated Data & Analysis

The Multiple Methods approach described by Hillary Collins in her book, *Creative Research,* is implemented in this project. Collins describes how each method of data collection has limitations but "if you use a variety of data collection methods you can 'see' the responses from different perspectives" (Collins, 2010, p. 48). In this project, Multiple Methods also allowed me to focus on one aspect of the scenario at a time. For example, by doing ethnographic cooking activities with children, I was able to focus observation on the children and better clarify their role in making dinner. I experienced how *Family Mise en Place* might impact the parents while cooking. From this understanding, I built a more robust prototype for parents and children to work together.

Data is triangulated by reviewing literature, making studio work and conducting participant research. Figure 4.1 demonstrates how each type of content is supported by a triangulation of methods. The methods overlap to illustrate how comparative analysis took place in the research and design process. For instance, qualitative research data from participants is supported by literature and compared to findings from working in the studio.

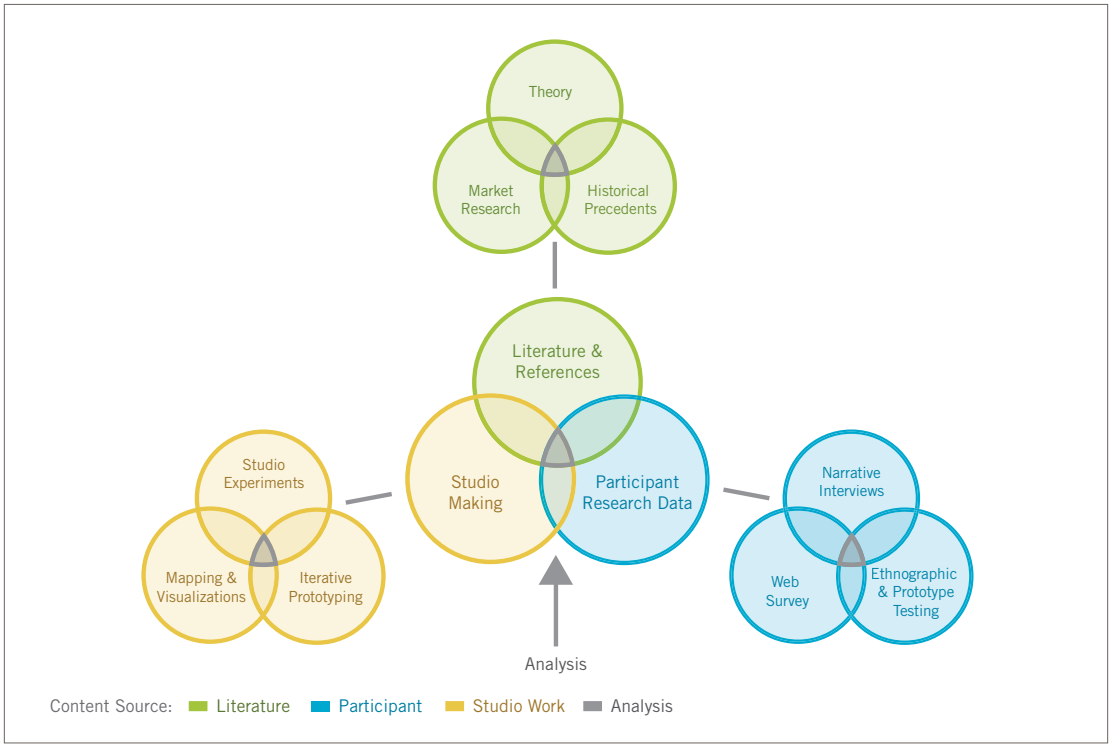


Figure 4.1 *Data Triangulation*

Qualifications

Some qualifications based on application of theory were developed as a way to validate the benefits of this project. These criteria included creating a design that embodied practical use of these concepts and theories:

- Constructivist learning
- Hands-on activities
- Heuristic or "self" discovery
- Interaction design
- Narrative building
- Cross-generational interaction

Based on participant responses, this attempt at applying hands-on theory into practice was positive. Hands-on cooking between parents and children created a space for discovery, learning, and cross-generational collaboration.

Context of the Research

By observing my level of interaction during the ethnographic research, I was able to identify ways to design myself out of the system so that it would be self-sustaining for families. The research involving cooking with families in their homes presented a complexity that would not exist in the ideal scenario of parents and children using *Family Mise en Place* on their own. The fact that I was playing the role of the parent in an unfamiliar kitchen added time that would not exist any end-user scenario. Also, many kids took time to get acquainted with me, which made the cooking process longer than it would otherwise be.

Prototype Findings

Participant research and the interaction with the *Meal Card* prototypes led to specific findings. After identifying that organization and time management were barriers to cooking meals, it became clear that the design should include a framework of meals to help families establish a system (the *Meal Framework*). This simultaneously assists families without a recipe repertoire and encourages the use of True Foods. The goal of the *Meal Framework* is that families who consistently use *Family Mise en Place* gain confidence to experiment and add other meal ideas to their weeknight rotation. This depends on the strength of the framework and the quality of the instruction. Confidence is something that builds over time, but a sense of inclusiveness and accomplishment will be evident after the first time a family cooks with *Family Mise en Place*.

Within the specified age group of six- to ten-year-olds, there were some clear sub-distinctions in each child's capacity to participate. The ability to focus on cooking, and stay attentive for the entire process, was appropriate for the range of six- to ten-year-olds. I did cook with one five-year-old, technically outside of my target range. There were opportunities to engage him in tasks, and he preformed quite well for his age. The one noticeable difference was his attention span. He would join us in cooking, get bored and go play, and then return when we started a new activity. This worked out well because his sibling and I were able to continue with the meal, and make space for him to jump in when he wanted. This flexibility saved time and maintained a positive environment for everyone involved, regardless of their ability and level of interest. I did not experience disengagement with any other child participant, so it appears—based on the cooking sessions—that six years old is the appropriate age for the children to become equal contributors to cooking weeknight meals.

Six and seven-year-olds contributed well to cooking the meal and stayed attentive and excited throughout the process. Children in this age range required assistance reading

and often requested confirmation that they had read icons properly. A discussion of fractions and measurements was helpful for this group. They often wanted to be shown which measuring cup or spoon to use. My objective was to show them and then explain the difference so that by the end of the meal they could identify and select the correct unit. This information is beneficial on a *Skill Card* so that children can build their understanding of tools used in the kitchen. What distinguished the older group, eight-to-ten year olds, was how their confidence in reading translated to a more confident approach to the kitchen. Most children in this age group had some experience baking and had a basic understanding of kitchen skills such as measuring. A few even had some familiarity cutting with knives and were open to more advanced tips on developing knife skills.

Most children benefited from some instructions on knife skills and measuring techniques. The moments where I paused to demonstrate, assist, and encourage the children were worthwhile investments of time. Parents cooking with *Family Mise en Place* may need to use the *Skill Card* and take small amounts of time upon initially cooking with their children, but it will lead their children to develop skills and provide bigger contributions to the meal preparation over time.

Reflecting on the Research Questions

The findings of this research were a result of careful planning, guided by specific research questions. The proposed questions of employing design to facilitate shared family meal preparation and cross-generational learning provided a valuable foundation that was then refined as research developed. It is valuable to reflect upon the final questions and note how the research findings respond to their objectives.

Can a design system help families involve their six- to ten-year-old children in preparing True Foods for weeknight dinners?

After conducting ethnographic research and responding with design iterations, it was found that *Family Mise en Place* did help families involve their children in preparing weeknight dinners. Further, I discovered that it was also beneficial to involve children. All participant children were eager to cook. In early research phases many parents commented that their kids would cook more often if allowed. Even those parents who had trepidations about cooking with their children on busy weeknights were motivated to involve their children more often after cooking with *Family Mise en Place*, due to how the design system functions.

Families found that thanks to the organization of the system and the additional help from their children, it was easier to cook with true foods than they had initially estimated. By cooking with True Foods in the participant research, kids gained tactile experience of ingredients. They loved to taste the raw vegetables, smell the sauces, taste and feel things as they cooked. This experiential, heuristic, learning created a valuable connection to the foods they ate.

How can design structure the experiences of parents and children when cooking together?

After the final prototype testing, parents responded that the meal cards specifically helped them to structure the activity and involve their children. The design was able to guide the experience so that children were meaningful participants.

Several aspects of the meal card design (see appendix two) proved to be key to structuring the experience:

- They were easy to use by both parents and children.
- They sorted and organized complex layers of information in a clean simple layout.
- The sorted information helped parents facilitate the cooking and delegate tasks to younger children.
- The flexible presentation of some of the instructions helped older children take leadership in directing the cooking process.
- The process of cooking was described with clear systematic instruction.
- The recipes on the cards provided opportunities for choice of ingredients and flavors.
- The physical format supported the possibility of multiple people moving about the kitchen when cooking.
- The form and layout of the cards allowed multiple people to read instructions simultaneously and work on different tasks at the same time.

One child participant reflected on using the Meal Cards saying, “well the cards helped me and they are useful. I also enjoy how it says you can choose…It kinda makes me want to invent new things“ (CP 5, age 8).

What are the barriers preventing parents from engaging in cooking activities with their children, and how can design help overcome those barriers?

From Narrative Interviews and the Survey, parents identified the perceived barriers that cooking with children takes longer and makes a huge mess. Many parents commented that if they do cook with their children, it is usually something they feel is simple enough for the kids to participate in-such as baking cookies-and it requires an entire weekend afternoon.

These barriers were addressed through design. The activity was structured and organized to include children. Recipes were simplified with a busy weeknight in mind. Estimated times, with children, were tested and placed on the cards to help families plan. During testing, no meal took more than an hour to prepare, and the average time was 30 to 45 minutes. Families affirmed that this was a manageable amount of time for them on a weeknight.

The structure of *Gather*, *Prepare* and *Cook* helped the kitchen to remain organized and provided transition times where families naturally tidied up between stages. Additionally, messages on the best times to clean up were also added to help encourage a neat workflow.

How can pre-teen (six- to ten-year-old) participants participate in cross-generational cooking?

As stated earlier in the analysis, six- to ten-year-olds are the ideal age to engage in cooking dinner. They proved able to participate in most activities that adults can do such as gather, chop, measure, read and follow instructions, and stir things on the stove. Six-year-old children require the most supervision and guidance but can quickly learn skills and patterns of cooking through repeated involvement. Ten-year-olds are capable of leading parts of the activity and can be more autonomous in completing their own tasks. In one participant family with three children (aged ten, eight and six), the ten-year-old was able to take clear leadership in preparing the meal. She read the instructions aloud, helped delegate tasks to her siblings and monitored rice cooking on the stove. She also organized the *Prepare* stage so that the bowls were centrally located so everyone could reach to combine their chopped vegetables.

The findings in response to this question were quite encouraging. Cross-generational cooking with six- to ten-year-old children can be a partnership. Parents were often surprised at the capability of their children to participate and pleased to learn how beneficial it is to involve their kids in cooking.

A Sensory Experience

Figure 4.2 *Child adding sauce to a plated dish*

Not everything with cooking involves hard skills. The research confirmed that children also need freedom to be creative and spontaneous in the kitchen. One finding was that kids love presentation and plating. In this research, they often wanted to tailor the blend of food on each plate. As kids plated each dish, they treated them like works of art and were proud of their aesthetic accomplishment as well as their sensory experience. Typically, this looked like more veggies for the parents and more starches for the kids. However, the assumption that kids are more likely to try unfamiliar foods if they have made them was confirmed in all but one case.

Family Mise en Place is visually and physically tactile. Visual and haptic mental processes work together to influence experience. This is particularly applicable to cooking. Paul Walker, Kees Overbeeke, and Stephan Wensveen describe the cognitive process of engaging with an object in detail in "Aesthetic Interaction: A Framework." The authors cite neuroimaging studies that show how the visual and haptic experience of an object stimulates the brain in such a way that " tactile information can affect the aesthetic evaluation of artifacts" (Locher, Overbeeke, & Wensveen, 2010, p. 75). Cooking inherently involves all of the senses: touch, sight, smell, taste and sound. The connection between tactile and visual is further reinforced

by *Family Mise en Place* and the use of representational iconography. By connecting visual images to the tactile sensations of physical objects, parents and children experience the processing of cooking in a new way.

Figure 4.3 *Child plating unique dish for each family member based on her understanding of their preference*

The outcomes of working with participants affirmed written theories and ideas from multiple fields and disciplines. At the conclusion of this study, there were many indications that the participant families would involve children in cooking on a more regular basis.

Chapter Five:
Summary

"What you put into your body is actually going to be what you get out of your life."

-Participant EN 1

Chapter Five:
Summary

Major discoveries that emerged from deep engagement with participants facilitated a robust and iterative design process. The research experience of interviews, survey and ethnographic activities validated ideas that cooking together builds relationships, community and dialogue faster than simple conversation. Practical experience cooking with the children reinforced the validity of the *Meal Cards* and stimulated ideas for developing *Instruction Cards* and *Skill Cards*. As participants became familiar with the structure—*Gather*, *Prepare*, and *Cook*—cooking time was reduced and parents found it easier to delegate tasks to children. The sequential involvement of participants through several iterations of the design provided both theoretical insights and applicable design innovations.

I uncovered some general principles of cooking in order to develop a *Meal Card* system that structured the critical components of a dish and encouraged flexibility and play with the variables. Using some Waldorf principles, with other Constructivist learning theories, *Family Mise en Place* hopes to help parents and children to discover their food intuition, particularly those who think cooking is a skill they lack. Simultaneously, cooking can engage children in learning within their stage of development, to connect with food, and contribute to cooking the weeknight family meal. The Waldorf method sees the role of learning as bringing out the capabilities within each person (Ruenzel, 1995). Everyone has the ability to do anything well; they just need to discover or rediscover that ability. This is a valid philosophy when applied to cooking.

Participant responses to the cooking activities supported the theories of *Family Mise en Place*. One participant stated that they plan on changing their mealtime ritual to include the child regularly in nightly dinner preparation. "I look forward to [my son] making tomorrow evening's dinner with me as we prepare for friends to come over later this week for a meal prepared and cooked by [my son]" (CP 3). The structure of the system successfully helped parents and children construct their experience around meal preparation.

One qualification for success is that participant actions and experiences are primarily guided, rather than dictated, by the *Family Mise en Place* system. The flexibility of the design framework encourages parents and children to feel ownership of the system. This focus may lead to greater adoption and interest in the cooking activities. Ideally, parents and children would work together to make the meals every week. The role of children would be meaningful participation and will relieve the burden on the parents as the sole meal preparer. *Family Mise en Place* could advance the role of the children as valuable contributors to cooking through instruction and constructive engagement.

There are some barriers to building a cooking ritual. Many children are unfamiliar with cooking; it is possible that a family's initial experience with *Family Mise en Place* could be just as challenging, and time consuming, as a typical weeknight. When kids are learning many new skills at once, they may take more time to complete tasks. Even though the entire system helps with time management, parents need to consciously allow space for the children to learn without too much performance pressure. Practice with *Skill Cards* can facilitate this development. The research showed that children were familiar with expectations and working smoothly by the second or third time they engaged with the system.

One benefit of using *Family Mise en Place* on a regular basis is that, through repetition, patterns of behavior would build over time. The activity would become familiar and more efficient within the family, alleviating the stress of weeknight meal times and creating a space for learning and relationship building. If *Family Mise en Place* is successful in the home, both parents and children would be supported to learn from one another and have a deeper relationship with food from a personal and ecological perspective. A successful adoption of the system would mean families buying fresh groceries of True Foods.

The state of North American food culture is a global issue that will require a collaboration of multifaceted efforts to improve. While the complete solution for shifting food culture necessitates proper time and attention to each part of the broken system, changing family habits is one good place to intervene in the system. Alice Waters states in the documentary "Ingredients" that "eating food with your family and friends that is locally grown, sustainably farmed—this is what people have been doing since the beginning of time. This isn't a fad. It's a civilizing ritual that gives meaning to life" (Bates, 2009). Through focusing on families in the home, *Family Mise en Place* facilitates building an enjoyable habit for parents and children to explore health and experience community with one another.

Appendices:

Appendices:
Appendix One Research

This appendix includes Reseach Ethics Board approval letter and an outline of each stage of participant research.

1. Narrative Interviews

2. Online Survey

3. Ethnographic Research

4. Prototype Testing

emily carr
university of art + design

1399 Johnston Street, Vancouver, BC, Canada V6H 3R9 ecuad.ca

Office of the Associate Vice-President Research and Industry Liaison

Emily Carr University of Art and Design
Research Ethics Board

October 12, 2011

MEMORANDUM TO: Louise St. Pierre, Associate Professor

Re: Application for Ethics Approval (2011051207)

With the revisions that have been discussed and submitted, there is full Research Ethics Board approval to proceed with participant research in Karen Whistler's MAA Graduate Studies research project, **Foundations for a Sustainable Community**. This approval is valid as of October 5 2011 and will last until your proposed completion date of March 15 2012.

Please note, the following:

- If you need to make any changes to this research project please write to the REB giving full details including revised documentation.
- Once the project is complete, please sign the attached completion form and return it to the ECU-REB mailbox.

Please, contact me at ethics@ecuad.ca if you have any further queries relating to this application. The Chair and members of the Board would also be happy to discuss general matters relating to ethics provisions if you wish to do so.

Sincerely,

Lois Klassen
REB Assistant
Emily Carr University of Art and Design

CC: Karen Whistler, MAA Candidate
Dr. Cameron Cartiere, Dean, Faculty of Graduate Studies
Dr. David Bogen, V. P. Academic and Provost

Narrative Interviews:

Interview Questions for Parents:

The purpose of this interview is to talk about how food plays a role in your family's schedule- both positive and negative- and maybe identify some barriers or frustrations in the conflict between your schedule and eating the way you'd like to. There will be a few demographic questions then a section on your schedule. This will be followed by questions on mealtime rituals and finally a section on how you and your children learn best.

#on video confirm consent form

Demographic Information

Your age

Number and ages of children

Are you raising your children with a partner or spouse?

Understand Family Schedule

Can you describe the schedule of a typical weekday for you and your family?

To understand things you like and don't like about schedule:

- What part of the day are you most satisfied?
- What part of the day are you most exhausted or overwhelmed?

Now that I am beginning to understand your schedule, more important to my project is how food fits into that schedule, the next questions will Identify your mealtime rituals.

- What time do you typically eat dinner?
- Describe how a typical weeknight meal is prepared
- What is your favorite meal?
- What is your children's favorite meal?

Tell me about the process of shopping for food

- Do you make a list?
- Is there any priority or filter you use for the foods you buy? (price, local, natural)

When everything is crazy, what is your fallback meal or plan?

How often do your kids participate in cooking and what are those experiences like?

Does everyone in your house eat the same things at dinner or is something prepared for any individuals?

- Why?
- How is this managed?
- What is the time involved in specializing?

any other mealtime challenges that you struggle with or that you've found solutions for?

A part of building on your family schedule and what food is like in your home with children is about learning. One aspect of this research is how kids and parents learn about food. I would be interested to discover Where/How Informal Learning Takes Place.

As their parent. how do you see your children learning best?

What types of issues do you, as a parent, seek information about?

- What ways does your lifestyle imitate how you or your partner were raised?

Where do you go to learn about new ideas for your family?

Can you describe a situation where your child proposed something that your family tried implementing?

- What did it look like to have your child contribute to how the family runs?

In your own words (and own definitition of the following terms), what are your thoughts on sustainability and food?

In your opinion, what does healthy eating look like for a family?

Any questions for me or my research, or anything else you want to add?

Interview Questions for Empty Nesters:

The purpose of this interview is to **reflect** on when your children were young, about ages 6-10. I am interested to hear how food played a role in your family's schedule. There will be a few demographic questions then a section on what your schedule was like. This will be followed by questions on mealtime rituals and finally a section on how you and your children learned best.

#on video confirm consent form

Demographic Information

Your age now

Number and ages of children now

When your children were young (6-10) were you raising your children with a partner or spouse?

The next few questions are about your schedule and what is important to my project is how food fit into that schedule. The next questions will Identify your mealtime rituals. (Learn typical schedule and how children were engaged in food.)

When your children where school age (6-10), what did a typical weekday look like for your family?

What time did you typically eat dinner?

Was there a meal you would consider the 'family staple' that was made most often?

What was one motivating factor in what your family ate for dinner?

Did you have any frustrations or barriers to cooking?

Can you describe what the process of shopping for food was like?

- What types of considerations influenced your choices (price, local, opinion of ingredient value)

How much input did your children have over what foods you purchased and prepared?

Did you have a garden where you grew any food or herbs?

Did your household have a 'philosophy of eating'?

How often did you cook with your children?

- What types of things would you make?
- When they joined in cooking, what tasks would you give the children?

A part of building on your family schedule and what food is like in your home with children is about learning. One aspect of this research is how kids and parents learn about food. These questions investigate how you received and implemented parenting information from outside sources.

When you had young children (6-10 yr old), what types of issued did you seek information about?

- Where did you go for information about those issues (whose parenting advice did you trust)?

What habits did you employ for raising your children that you learned from your parents or grandparents?

- How did traditional family recipes play a role in your home?
- How do you feel the lineage of those recipes or habits get passed down?

Can you describe a situation where your child proposed something that your family tried implementing?

- What did it look like to have your child contribute to how the family runs?

What are your thoughts on sustainability and food?

In your opinion, what does healthy eating look like for a family?

Any questions for me in my research or anything else you want to add?

Online Survey Questions for Parents:

Survey consent form, required name, email address and date as signature of confirmation.

Please confirm that you are a parent or guardian of at least one 6-10 year old child.
Check Box
(Continue)

Age:
0 below 25 0 25-30 0 30-35 0 35-40 0 over 40

City and Country
[ ] (open ended box)

Sex:
0 male 0 female

How many children live in your home?
1 2 3 4 5- over 5
Please list their ages
[ ] (drop down number)
[ ] (drop down number)
[ ] (drop down number)
[ ] (drop down number)

Are you raising your children with a partner or spouse?
0 yes 0 no

----------content section break------ Family Schedule

On average, what time do you wake up on weekdays?
[ ] [ ] <--- drop down

On average, what time do your children wake up on weekedays?
[ ] [ ] <--- drop down

Typically, what time do you leave the house or begin homeshcool?
[ ] [ ] <--- drop down

Where does your family typically eat breakfast (check all that apply)?
0 we do not eat breakfast
0 at a restaurant/fast food/cafe
0 at the dining table
0 in the car/ on transportation/ on the go
0 child(ren) eat at school
0 other: specify _____

Do your children attend before school care?
0 yes 0 no

How many weekdays do your kids eat lunch
0 1 2 3 4 5

Typically, where does the meal come from? (check all that apply)
0 my partner or I pack lunch 0 my child packs their lunch
0 come home for lunch 0 school cafeteria
0 fast food or restaurant 0 other: specify _____

How many weekdays do you eat lunch?
0 1 2 3 4 5

When you eat lunch where do you most often get the food? (check all that apply)
0 coffee shop 0 grocery store
0 restaurant - sit down 0 fast food
0 bring from home 0 other: specify _____

Where do you eat lunch most often? (check all that apply)
0 at your desk or at work 0 at home
0 in a restaurant 0 in your car or on transit
0 in a workplace cafeteria 0 other: specify _____

Do your children attend after school care?
0 yes 0 no

Are your children involved in structured afternoon activities such as sports or lessons?
0 yes 0 no

If yes, how many weekdays does your family attend after school activities?
0 1 2 3 4 5

On average time do your children arrive home for the day?
[ ] [ ] <--- drop down

Typically, what time do you get home for the day?
[ ] [ ] <--- drop down

Generally, what time does your family eat dinner each day?
[ ] [ ] <--- drop down

On average, how many days per week is dinner prepared at home?
0 1 2 3 4 5 6 7

Typically, how much time do you spend preparing dinner when you cook at home?
0 > 15 minutes 0 15-30 minutes
0 30-45 minutes 0 45-60 minutes
0 60-75 minutes 0 + 75 minutes

Are there any dietary considerations that need to be made for individuals within your family?
Open ended_____

How much time on average does your family spend eating dinner?
0 < 5 minutes 0 5-15 minutes
0 25-35 minutes 0 35 + minutes

When at home, where does your family eat dinner?
Check all that apply.
0 Living room: 0 In front of TV
0 Dining table 0 Office or in front of computer
0 Deck or patio outdoors 0 Bedroom
0 other: please specify _____

How much time is spent each night on homework?
Please fill in each child from youngest to oldest
[ ] [ ] <--- drop down minutes
[ ] [ ] <--- drop down minutes
[ ] [ ] <--- drop down minutes
[ ] [ ] <--- drop down minutes

What time do your children go to bed?
If different children have unique bedtimes, please use multiple time boxes provided
[ ] [ ] <--- drop down
[ ] [ ] <--- drop down

What point of the day are you most overwhelmed as a parent?
0 morning 0 after school
0 homework 0 dinner time
0 bed time 0 other: specify _____

Please describe:
_____

----------content section break------

How often do you purchase groceries for your home?
0 > every 2 weeks 0 every 2 weeks
0 Once a week 0 Twice a week
0 3 times a week 0 More than 3 times a week

Do you use a bulk store to buy items in large quantities?
0 yes 0 no

If so, how often do you visit these stores?
0 Once a week 0 2 times a week
0 3 times a week 0 4 times a week
0 + 4 times a week

How many locations/stores do you purchase groceries from?
0 one 0 two 0 three 0 more than three

If you go to more than one, please briefly list reasons why:

_____

_____

When buying produce, rate the following considerations from 1- 8

0 something you like to eat	0 something your child requests/like
0 nutrition or health value	0 price
0 appearance of freshness	0 organic certification
0 distance produce travelled	0 product is in season

When buying poultry or meat rate the following considerations from 1 -8

0 something you like to eat	0 something your child requests/like
0 Nutritional Value	0 Ease of Preparation
0 Product Health Claims	0 Price
0 Weight control or dieting	0 Organic or Free Range certifications

When buying pre-made or packaged food, rate your considerations from 1-8

0 brand	0 something you like to eat
0 something your child requests/like	0 Nutrition or health claim
0 Ease of preparation	0 price
0 organic ingredients	0 Weight control or dieting

----------content section break------LEARNING

Do your children have curriculum around food choices at school

0 yes 0 no

Please describe what activities they do at school to learn about food

_____

_____

_____

_____

Do any of your children have curriculum about the following topics at school (check all that apply)

0 climate change
0 air pollution
0 water pollution
0 toxic chemicals
0 sustainable transportation
0 nutrition
0 energy conservation

What is your opinion of your child learning these topics in school?

_____

_____

Do you supplement this teaching with your own views on the subjects?

0 yes 0 no

if yes, please describe _____

----------content section break------

Please provide any additional comments:

_____

----end----

Thank you for participating in this survey. Your contribution to this thesis research is very valuable and appreciated.

If you are interested in continuing with this research, please submit your email below. The next phase of research involves participating in a set of activities, such as cooking, with your children.

email:

Then each participant was emailed a pdf of the consent form.

Ethnographic Research:

Each ethnographic research session followed this outline of events. The *Meal Cards* used were updated for each session, reflecting the latest design iteration.

1. Researcher brings all tools and ingredients to participants' home, including kid-safe knives.
2. Assistant accompanies researcher to supervise safety and monitor children.
3. Parent(s) and researcher go over the consent form, parent signs consent as well as model release on behalf of their children.
4. Video camera is set up and turned on to record the activity.
5. Children are given aprons and instruction on safety and knife handling.
6. Children and researcher each set up a workstation of cutting board and knife.
7. Children and researcher follow the cards to make a meal in the gather, prepare, cook structure.
8. Assistant supervises and steps in as necessary to assist or when unsafe behavior is noticed.
9. Children and researcher finish preparing the meal and wash the dishes.
10. Children plate the meal for their family.
11. Children and parent(s) sit down and enjoy the meal while researcher packs up and leaves.

Prototype Testing:

Each prototype testing research session followed this outline of events. The *Meal Cards* used were updated for each session, reflecting the latest design iteration.

1. Researcher brings all tools and ingredients to participants' home, including kid-safe knives.

2. Parent(s) and researcher go over the consent form, parent signs consent as well as model release on behalf of themselves and their children.

3. Video camera is set up and turned on to record the activity.

4. Children are given aprons and instruction on safety and knife handling.

5. Researcher hands meal cards to family and observes as the meal is prepared.

6. Researcher acts as safety monitor to step in only when unsafe behavior is noticed.

7. Children and parents finish preparing the meal.

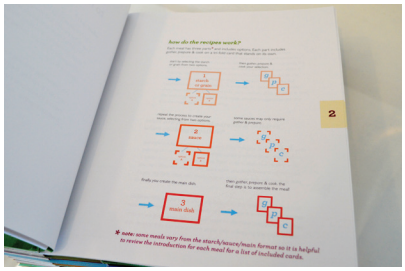
8. Researcher asks follow-up questions while family cleans kitchen (as food cooks).

9. Children and parent(s) sit down and enjoy the meal while researcher packs up and leaves.

Appendices:
Appendix Two Design

This appendix includes an overview of the final design solution.

Final book with instructions and pockets for each meal.

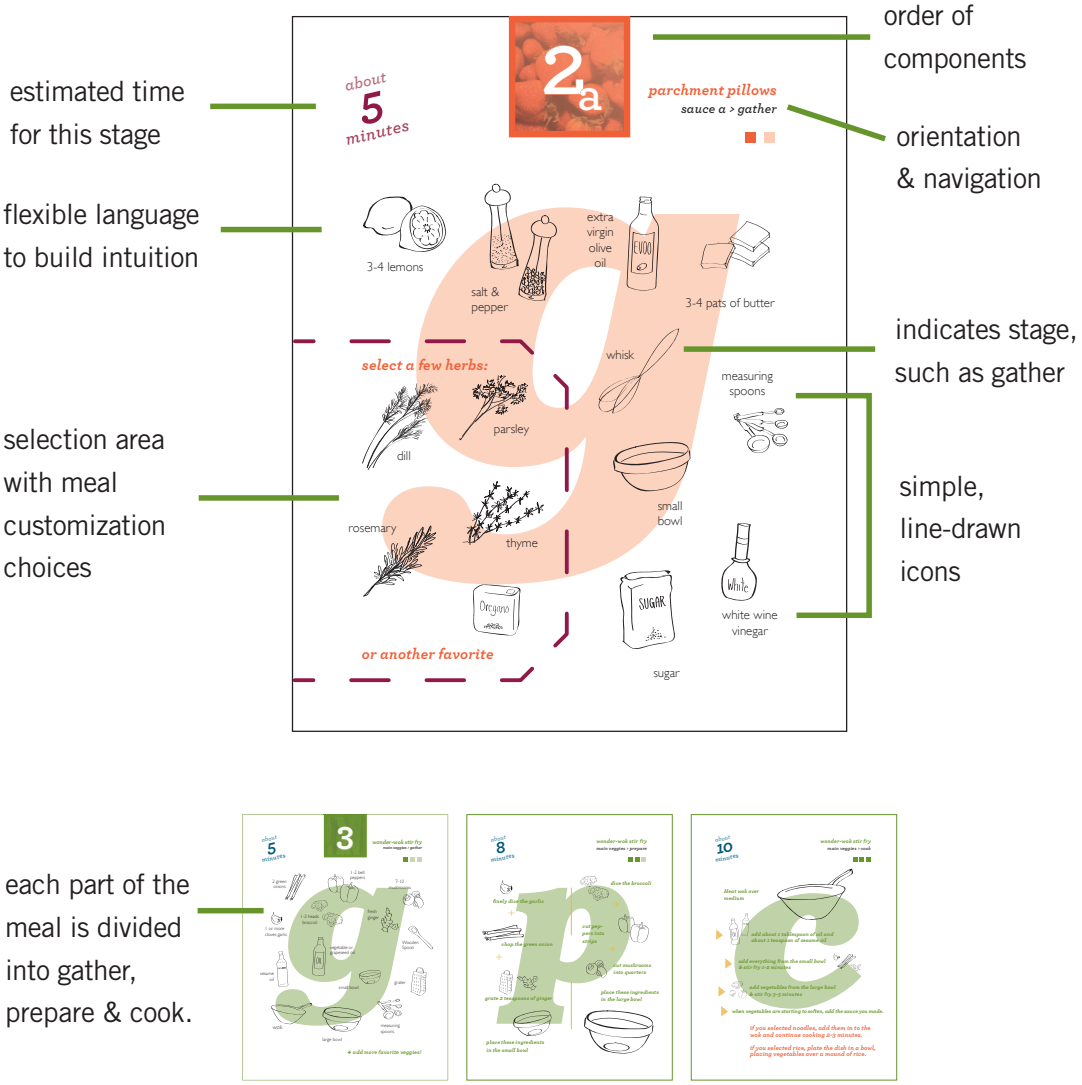


Each stage of Gather, Prepare, Cook is on one tri-fold card.

Each set of cards is color-coded by meal and has its own pocket in the book.

There are six meals and one desert, aptly named for engaging children.

The layers of commuication within the final meal cards demonstrate how a complex amount of information can be displayed with simple form and clean structure.



each part of the meal is divided into gather, prepare & cook.

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