

Exploratory Kitchen Media Research

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CLIENT

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1. INTRODUCTION

Christina Wasson

OVERVIEW

This project was conducted for Motorola Mobility's Applied Research Center by a class in design anthropology at the University of North Texas. Our client was Crysta Metcalf, Anthropologist and Manager of Experiences Research. Our interactions with Crysta were highly productive and collaborative. She showed an impressive level of dedication by participating in our weekly class meetings via phone, as well as visiting us in person three times over the course of the semester. She was also a strong intellectual partner throughout, shaping the project goals and design before the class started, and providing feedback during the semester to keep the class focused on what was most useful to Motorola Mobility.

Our project was an exploratory study of how people use media to enhance their cooking experience. The goal was to elicit new ideas for Motorola applications and services in the kitchen. We investigated how multimedia devices are currently being used in the kitchen/cooking context before, during and after the food-making process. As noted in a project overview document prepared by Crysta Metcalf, the kitchen is often described as "the heart of the home," and much research has been done on family activities in the kitchen. However, most ideas that have resulted from such research revolve around family calendars, ways of coordinating and keeping track of family activities, etc.

Yet we know that much of what is done in the kitchen is food preparation. We believe there is an opportunity to discover and understand people's needs and desires around the specific activity of cooking, and to invent new applications and services that can address those needs. Are people trying to be entertained while cooking? Why and in what ways? What kinds of social behaviors surround the cooking process? Are people learning about cooking techniques? New recipes? When do they do these things – before, during, and/or after cooking? What applications, services, websites, etc. are they using for their various purposes and on what devices? What makes people choose one device over another for particular purposes? Answers to these questions can be used to brainstorm innovations in the design and development of applications and services geared to the kitchen space, cooking and media.

This report details the results of our project. Chapter 2 presents the overall frameworks that we used to structure our findings. Chapter 3 introduces the eight participants in our study, summarizes their patterns of media use, and provides three sample trajectories of their media use during particular cooking experiences.

The rest of the chapters explicitly link research findings to design ideas. Chapter 4 explores patterns of sociality. Chapters 5-7 describe the media use characteristic of the three orientations toward cooking that we found among our participants: the foodie orientation, the efficiency orientation, and the health orientation. Chapter 8 focuses on media devices in the kitchen.

THE RESEARCH PROCESS

DATA COLLECTION

Eight research participants who regularly use media to enhance their cooking experience were recruited. They were asked to take pictures documenting their media use, and to draw a map of their kitchen showing the location of all media devices used during a particular cooking event. Then student researchers conducted open-ended, in-depth interviews with the participants to learn more about their cooking-related media use. The students worked in pairs and videotaped the interviews. Interviews lasted 1.5-2 hours.

The student researchers placed photos, maps, detailed fieldnotes about each interview, and extensive video clips from the interviews on a WordPress site that they created for this class. This made field data available to the whole group for comparison and analysis purposes.

DATA ANALYSIS

Much of the analysis was conducted during class time, by all students working together as a group, with myself as guide and facilitator. The students presented findings from their research over the course of four weeks. Each team of students verbally narrated their fieldwork experience, and illustrated key moments and insights with photos and video clips. Other students asked questions and discussed the fieldwork.

During this process, I as facilitator noted examples and emergent insights in a Word document that was visible to the whole class via an LCD projector. Initially, the Word document functioned somewhat like a more sophisticated and deep version of a flipchart. As the Word document became longer, students started to group the ideas by having me cut and paste bits of text. Information was organized into the categories of instances, patterns, and design ideas. This process was somewhat similar to creating an affinity diagram, moving to an increasingly sophisticated and abstract level of analysis. Over time, the topics emerged which became the chapters of this report.

Toward the end of the semester, students were asked to choose which topic they would focus on for the report. Chapter authors generally included a mix of anthropology and design students. They conducted further analysis of the data on their topic and developed design ideas based on the research findings. In addition, one student, Jo Aiken, took on the large task of preparing the PowerPoint presentation.

THE STUDENTS

The students in this class included:

- 5 undergraduate anthropology majors
- 2 undergraduate communication design majors

- 1 undergraduate interdisciplinary arts and design/anthropology double major
- 3 MA students in anthropology
- 2 MFA and 1 MA students in communication design
- 1 PhD student in marketing
- 1 PhD student in education

The class was therefore mainly a mix of anthropology and design students, with a few students from other fields for additional diversity and insights. This mix produced a productive interdisciplinary collaboration. The project benefited from the expertise of each discipline.

2. FRAMEWORKS

Mary L. Maxwell and Ashley Paquette

This chapter introduces three overarching frameworks that inform the rest of the report.

ORIENTATIONS TOWARDS COOKING

There are three different orientations towards cooking that we defined as themes in our research. We call these orientations the Foodie Orientation, the Efficiency Orientation, and the Health Orientation. Each orientation is associated towards particular patterns of media use. A desire for healthiness, a concern for time, and passion for food are the circumstances surrounding the cooking experience. Based on the circumstances we observed, we constructed the categories and then placed our participants in them.

THE FOODIE ORIENTATION

Foodie is defined as a person who is an aficionado of food and generally engages with the larger cooking community through the use of media. People who are foodie oriented tend to cook recipes that may be more complex and include exotic ingredients. Foodies generally use media to research techniques in cooking, and often participate socially online when it pertains to cooking. Media was also used as a source of inspiration for future cooking experiences.

THE EFFICIENCY ORIENTATION

People of the efficiency orientation cook with a concern for ease and to save time and money. People of this orientation generally have a tight schedule and children to feed. Often times, when looking for recipes, these people look for something that is going to be easy and quick to make, and has simple ingredients. For these people, the use of media is important in the planning of meals and grocery shopping.

THE HEALTH ORIENTATION

The last orientation that we recognized was the health orientation. People under this category look mostly for recipes that have nutritious ingredients and don't contain too many calories or fat. One participant in particular used media to measure calories in her diet intake. This trend was not as prevalent in the data that was collected. We decided it was significant because it was strongly expressed by couple of our participants.

ONE SIZE FITS ALL?

One orientation may be dominant for a person, but it is not all inclusive. Many participants displayed multiple orientations. One example of this behavior would be our participant Rachael, who liked to make meal plans for the sake of time preservation, but also liked to make complex desserts. This made her Efficiency oriented but also Foodie oriented. Another example of this is George and Annie, who need to efficiently feed their children for a good price but also wanted them to eat healthy. This signifies that they are both Efficiency and Health oriented. These deviations from orientation were the most obvious of our examples, and serve to demonstrate that the categories we have constructed are abstract in some ways. People have a repertoire of orientations that they draw upon.

THE ENDLESS CYCLE OF COOKING EXPERIENCES

The cooking experiences can be understood as being composed of three stages: before, during, and after; or planning, execution, and celebration. The use of media was most prevalent before cooking and after cooking. The preliminary stage is characterized by the richest media use, as it includes exploration activities that lead to browsing and information searches. Often, the end of one cooking experience

may lead to the beginning of the next cooking experience, either for the same person or another person. From this we have created two “proverbs”:

One person’s end is another person’s beginning.

The end of one cooking experience often leads to another.

The most prominent example of this behavior would be our participant Jane Doe, a typical “foodie” who is often inspired by media to cook something and then share it on Facebook afterwards. This aspect of cooking is cyclical because she draws inspiration from single or multiple media sources and then celebrates her results through social media. This may lead her online friends to cook the same recipe, or it may inspire her to try another recipe. The trajectories across media in the before, during, and after stages of the cooking experience helped our group to better understand online media and its catalytic nature. More information about media trajectories will be explained later in chapter 3.

COOKING WITH, AROUND, AND THROUGH MEDIA

In order to understand where media is in the cooking experience we have characterized three different situations that exist in space and time. These situations include people interacting *with*, *around* and *through* media. This has helped us describe where media is in the cooking experience and how it is significant.

WITH MEDIA

This interaction is usually preliminary and our research has shown that in many cases media is a tool for learning. It is used to gain knowledge about cooking practices or to search for recipes. During the execution process, media may be in the foreground as a focus on learning and information. Watching cooking videos for instruction is an example of using media in this way. Cooking videos have shown to be helpful during the cooking process but this trend was not as prevalent as preliminary media use in our data.

AROUND MEDIA

People interact with each other while media is either in the foreground or the background. This type of media use forms the atmosphere in which people may perform a cooking activity. This interaction may include social behavior but it is not necessarily limited to it. Media exists in the foreground as a source of inspiration during the cooking process, but does not play an active role in the present cooking venture. An example of this may be someone who is watching a cooking related program while preparing a meal and decides to look up the recipe to use later. Entertainment such as non instructional cooking shows and music exist as background media. Videos and television were usually a source of entertainment and did not directly relate to cooking.

THROUGH MEDIA

When people interact through media, they use it as a communication tool. This behavior may include posting comments, giving ratings, writing reviews, sharing pictures and a plethora of other social behaviors. Jane Doe would use Facebook to talk about recipes and share pictures of the food she made. One interesting example of this type of behavior that came up in our data was the use of the iPad as a communication tool between the divorced couple who still shared a home, Perry and Jordan. Jordan would find recipes and leave them open in the browser for her ex-husband to see, indicating that she wanted him to cook what was on the screen.

IMPLICATIONS

As we have noted, people have a repertoire of cooking orientations that they engage in. Media use mostly happens before and after cooking. People interact with, around and through media in order to make the cooking experience easier and more enjoyable. An implication to these general frameworks that we have found would be an interface that is easy and lends itself to the preparatory phases of the cooking experience. Design ideas that aid the process of cooking and give people a way to share ideas and recipes online would be welcomed by cooks of the 21st century.

3. CASE STUDIES: PARTICIPANTS AND THE TRAJECTORIES OF THEIR MEDIA USE

Ruby-Ren Dennis and Eric Orange

RESEARCH FINDINGS

This chapter presents case studies of our eight research participants and provides information about the trajectories of their media use across the cooking experience. For those who have not spent the weeks we have going over the details of every interview, the following chapters and their design suggestions may seem disembodied. We felt that to best present the implications of the data, it was important for readers to first fully understand the data. Therefore, we have put together short summaries of each participant's media usage, including the points in the cooking process where they used media.

We sorted our participants' media usage by the criteria: 'before', 'during' and 'after'. 'Before' denotes that the media used was in particular for the preparation and inspiration of the cooking process. 'During' implies that the participant used the media in tandem with cooking, and most likely would have not used the media, or used it in a different way, had they been at any other point in the cooking process. 'After' is exclusively referring to media usage that has to do with the cooking experience that was just completed, and is not related to any other media usage.

PARTICIPANTS

JANE

Female, 45 years old, Latina



Jane was what we define as a ‘foodie’. She has email subscriptions to several recipe websites and receives new recipes and coupons in her inbox daily. She watches TV shows before the cooking process, which gives her inspiration to look up recipes online. The computer she uses before the cooking process is her laptop. Usually situated in the living room, it also accompanies her to work and she will look up recipes on the train. She also uses her phone to pull up recipes while shopping, but doesn’t use apps or anything of that kind. During the cooking process, Jane looks up recipes she has already found earlier, on a laptop in the kitchen. This laptop is stationary, staying on its own stand on the kitchen table. She also looks up instructional videos on YouTube on this laptop, and plays them several times while she cooks. After the cooking process, Jane takes pictures of her completed recipes and posts them to Facebook. She writes about what changes she made to the recipe, and gives her picks for the best ones. What recipes she likes best, she not only posts to Facebook, but also uses the recipe box feature on several of the websites to save them to use again later.

RACHAEL

Female, 36 years old, white



Before the cooking process, Rachael looks up recipes on websites, and says that magazines sometimes lead her to them. She makes a grocery list via the website, but does not use a phone or website application to shop, instead choosing to print them out. She said that she often transitions from recipe to video, for more details about the techniques needed to complete a recipe. During the cooking process, Rachael has both instructional videos and the recipe she already found on her laptop for reference. After completing the recipe she posts pictures to Facebook.

ANGELA

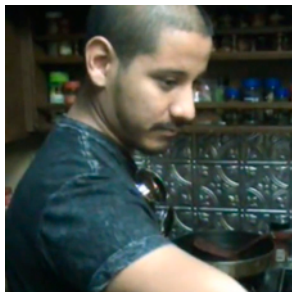
Female, 36 years old, white



Angela is a stay-at-home mother of 3 who works part time at Kohl's department store in the mornings. Angela has her own hardcopy binder cookbook and meal plan, but most of the recipes she finds online and then prints and puts in the binder. Though this is somewhat less media than some of our participants use, she uses a grocery list application, which none of our other participants did. During the cooking process she does watch TV, but says it is not cooking shows or anything related. She also sometimes has the recipe up on her laptop for reference, unless it is already in the meal plan binder. Afterwards, she shares her recipes via email and Pinterest, a blogging site, with other stay-at-home mothers.

MICHAEL

Male, 25 years old, Latino



Michael is another foodie and this is evident in the volume of media he uses, which is similar to Jane. Before beginning cooking he watches cooking shows on the TV and looks up recipes and techniques on his laptop. During the cooking process, the laptop is used for recipe reference and instruction videos. On the TV, he keeps playing cooking shows in the background and will sometimes stop cooking to look up things on his laptop after hearing it on TV. He uses a phone timer application, but no recipe apps. After he finishes cooking, he will take photos for sharing on Facebook. He also has a cyclical process to his cooking, because the inspiration he gets from his cooking shows often inspires the next thing he cooks and so become a part of the 'before process'.

EPIPHANY

Female, 42 years old, African American



Epiphany is one of our more scant media users. She is a member of Weight Watchers, and references her own recipes she has previous entered by means of the official site. During the cooking process, she uses no media at all. Afterwards, however, she adds recipes to her Weight Watches account, if they are new, and shares her successful cooking experiences through email. Email is also another way she saves the recipes she likes. She sometimes also takes pictures of the food using her phone and posts them to the Weight Watchers website.

JORDAN AND PERRY

Female, 44 years old, white and male, age unknown, white

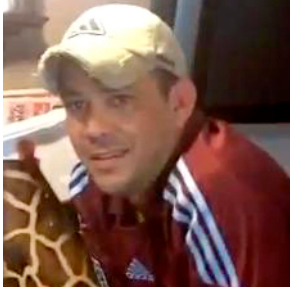


Jordan was our official study participant. Perry and Jordan are a divorced couple that live together with their children. They exclusively use the iPad in their cooking experience, and it is the main means of communication between them.

Jordan will look up the recipe and have it displaying on the iPad screen. Perry will see the recipe and make it to specifications, keeping it up for reference during the cooking process. Afterwards, however, there is no social media usage or storing of the recipes.

GEORGE AND ANNIE

Male, 35 years old, white and female, 29 years old, white

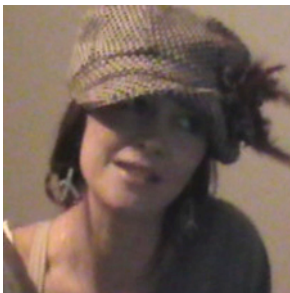


In this household, the desktop computer is used to look up recipes online, often times due to prompting and inspiration from TV shows. They use the iPad in the kitchen to look up tips and questions while cooking. Sometimes, Annie uses

her phone to call her mother, who is a chef, for cooking advice. George reported that he watches grilling TV shows to follow recipes, but is usually done cooking before the show is over. They reported no media activity after the cooking process was over.

REV

Female, 37 years old, white



Rev is a married stay-at-home mother of four. She has two children from a previous marriage, and is married to a man with two children also from a previous marriage. Rev, as well as her four daughters and husband, look up recipes on the laptop and iPad. Once a menu has been decided, she uses her phone to send a mass text to the rest of her family to tell them what she will be cooking. She then references these recipes during the cooking process on either the

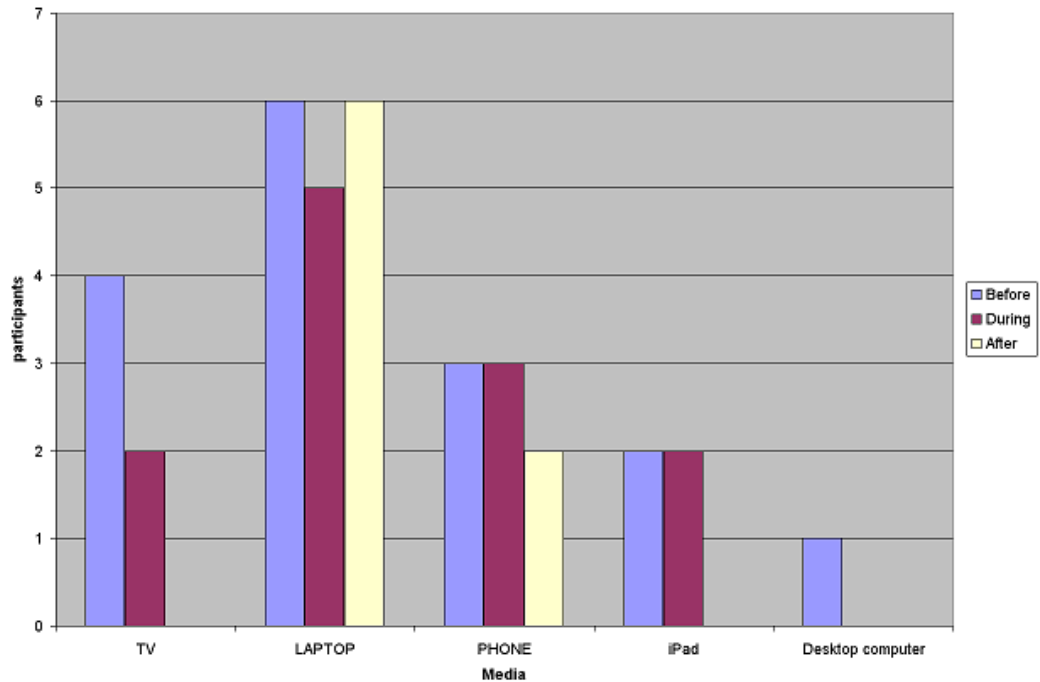
laptop or iPad, depending on which is available. She also uses her phone to call friends and family for advice while cooking. After completing the recipe, she posts photos and other details about her cooking to Facebook.

USE OF DEVICES

Moving from one device to another was not rare in our study. Most participants found inspiration in one form of media, execution in another, and celebration in still another. It did not seem to matter what media they had available, if the household had more than one piece of technology available it became transitory in the cooking process. The most common trajectory was TV and laptop before, laptop during, and

laptop after. Figure 1 shows the number of participants who used the media, and is color coded by the point in the process at which each medium was used.

Figure 1. Use of Devices Before, During and After Cooking



TV

The television was used primarily before the cooking process. Four of our participants said that they watched cooking shows before cooking because it gave them ideas for what to cook. Only two of our participants reported watching cooking shows during cooking, and for one of them it was only as inspirational to look up the recipe on the laptop, not as a references for instruction. There was no use after the cooking was over.

LAPTOP

The laptop computer was by far the most commonly used piece of technology in the cooking process. Those of our participants who liked to watch videos during the cooking process, always chose their laptop for viewing over other devices. Michael reported the larger screen and keyboard to be preferable to his phone, and this seemed to be the general consensus. It is also the portal to not only several different

websites for a variety of palates and expertise range, but also to sites like Facebook, which was the primary medium for after the cooking experience.

PHONE

Though the trajectory of the phone usage was consistently less than four at each point in the cooking process, a total of six participants used their phones for cooking. Rachael and Jane used it before in the grocery store, and Rev used it to text her family about meal plans. During cooking, Michael used his exclusively for a timer, where as Annie and Rev were calling friends and family for advice. Both Epiphany and Michael used their phones after cooking exclusively in taking photos for sharing.

IPAD

Three of our participants owned iPads. Perry and Jordan used it exclusively, but Rev and George & Annie used it in tandem with other devices. However, none of our participants reported using any kind of applications on iPad to assist them in the cooking process. It was utilized to access the internet in the same way as the laptop in all cases.

DESKTOP COMPUTER

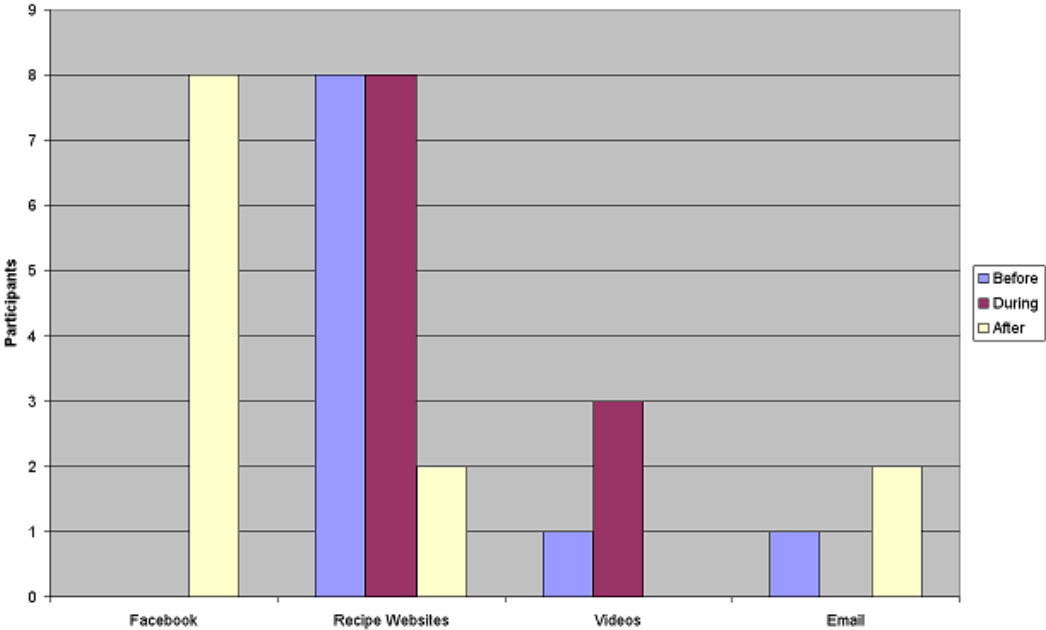
Only George & Annie used this device, and it was used in the same context as the laptop: to look up recipes online.

USE OF INTERNET-BASED MEDIA

The laptop was used most often, and at every point in the cooking process. Its function was primarily access to kitchen media through the Internet, such as recipe websites and social media connections, whether it is Facebook or email. Facebook was only used only after the cooking process (see Figure 2). Even though participants said they posted recipes there, no one went to Facebook to find recipes. However, the various recipe websites that our participants referenced were accessed at every point in the cooking process. The only two applications actually used on phone devices were the kitchen timer by Michael, and the grocery list app by Rachael. Others used their phones for grocery lists, but did not use an actual application. Grocery shopping is the main use for the phone in the cooking process,

and could be looked at as a viable source of design goals. Except for the TV, which occupied a very stationary role in the cooking process, all other devices were used to access recipes online.

Figure 2. Media Usage via Internet



SAMPLE TRAJECTORIES

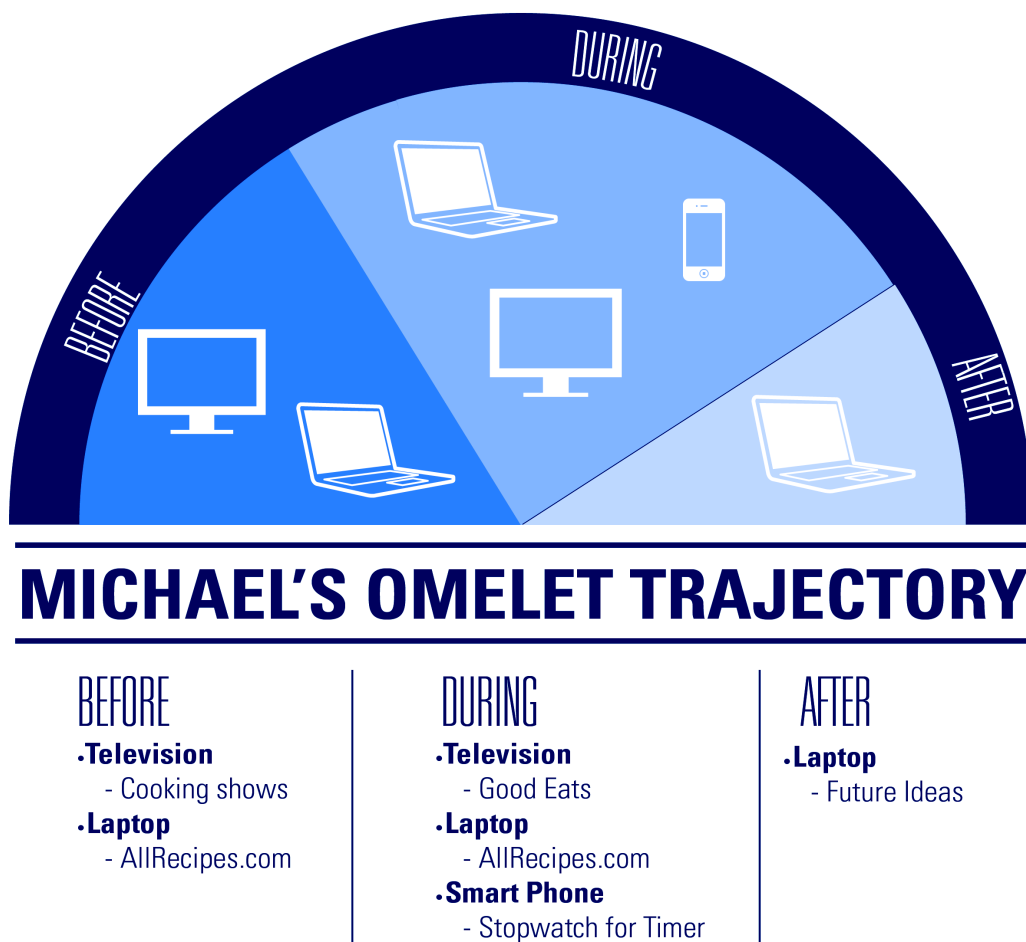
In this section, we describe and illustrate three sample trajectories of cooking experiences. These examples are based on particular participants’ stories to show how media use informed each of the cooking orientations we have identified.

FOODIE ORIENTATION: MICHAEL’S OMELET

As Figure 3 shows, Michael used media at every point in the cooking process while making an omelet. Before the cooking process he watched cooking shows on the TV for inspiration. He accessed allrecipes.com on his laptop as his source for recipes, saying that he paid close attention to ratings and comments from other users. During the cooking process, Michael had allrecipes.com open on his laptop where he

could look at it at his convenience. This was not, however, to reference the recipe for the omelet, but instead was to leisurely check the recipe of the day and other interesting looking recipes for later. He also had the TV playing *Good Eats* in the background, and would from time to time look up things he had heard on the television, on his laptop. He used his Smartphone stopwatch application as a cooking timer. After completing the omelet, Michael continued to browse the Internet for looking ideas for future dishes.

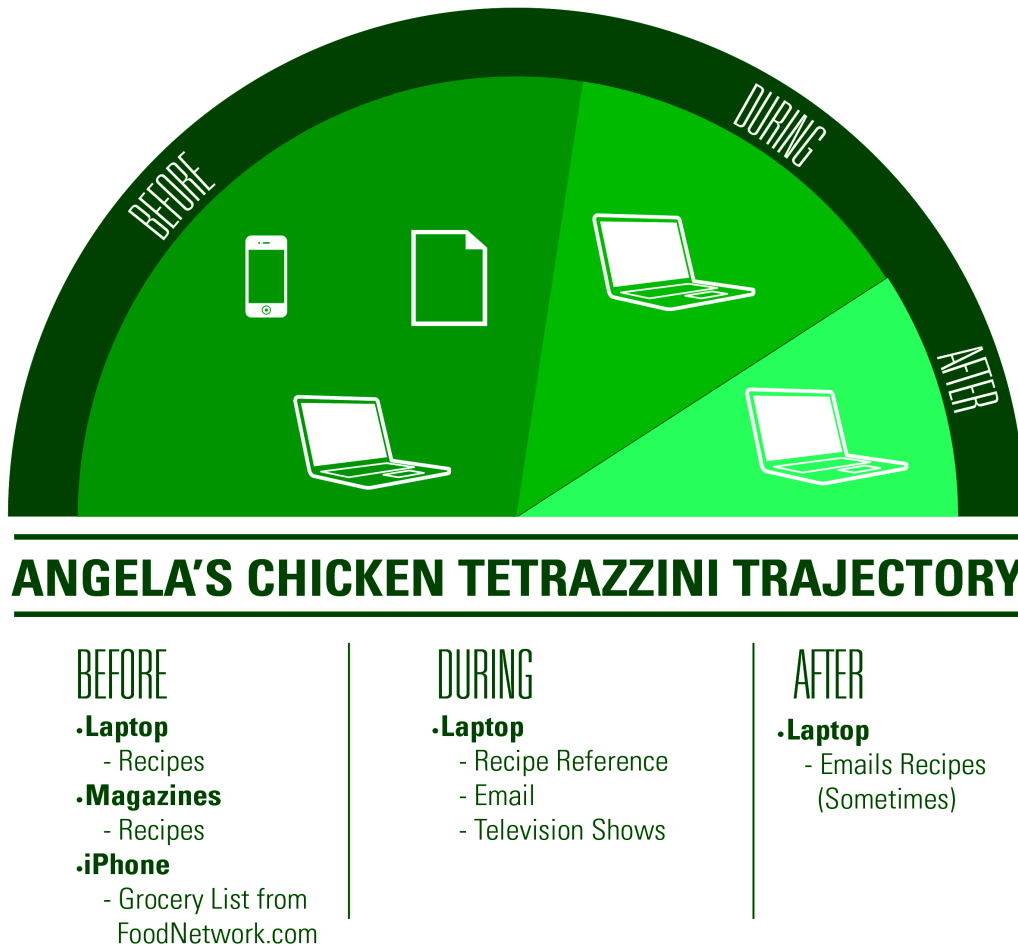
Figure 3. Michael's Omelet Trajectory



EFFICIENCY ORIENTATION: ANGELA'S CHICKEN TETRAZZINI

As Figure 4 shows, in making Chicken Tetrazzini, Angela used media at every point in the cooking process. She started her before process about a week in advance, looking up recipes and instructions online, as well as in paper media. In this case, based on her research, she decided to add peas to the tetrazzini. She uses a grocery list app on her iPhone, and added the ingredients as soon as she found the recipe she liked on Foodnetwork.com. During the cooking process she kept her laptop open with the recipe viewable, to reference it at any time. She had a second tab open on her browser with her email, so she could check it while cooking. She also used the time she had cooking to catch up on Private Practice, a TV show that she can watch via her laptop. She did not report using any media after this particular cooking process, but does sometimes use her email to share recipes.

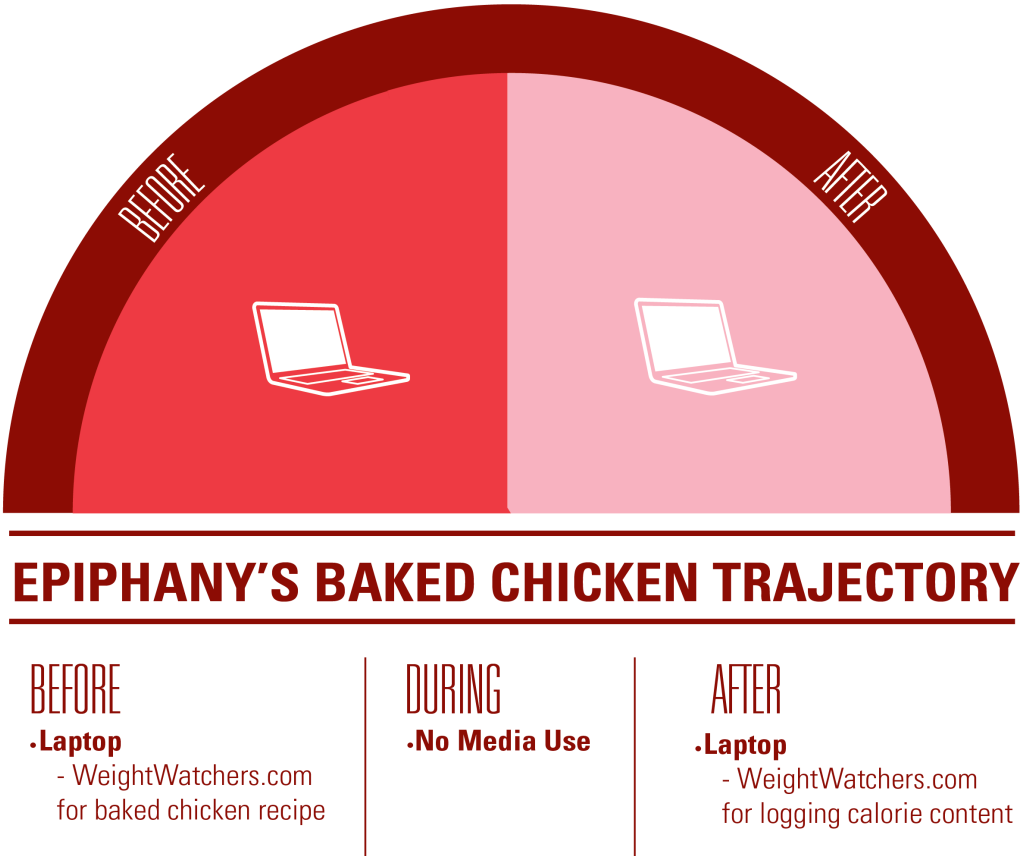
Figure 4. Angela's Chicken Tetrazzini Trajectory



HEALTH ORIENTATION: EPIPHANY'S BAKED CHICKEN

As Figure 5 shows, in making baked chicken, Epiphany used media before and after the cooking process. Before, she used her laptop to access the Weight Watchers site and find her most popular recipe for baked chicken. She documented using no media during the cooking process at all. After completing the recipe, she returns to Weight Watchers from her laptop and logs the calorie content for the meal. Though this was the extent of her media use for this particular trajectory, she did express wishing there was a Weight Watchers app for the BlackBerry.

Figure 5. Epiphany's Baked Chicken Trajectory



DESIGN IDEAS

From these findings we believe that something accessible via the Internet, helpful with grocery shopping, and with a social media connection, is best for kitchen media designs. There needs to be an app that will keep a grocery list and give people ideas for recipes based on what they buy. It should be accessible via a regular Internet browser, and the information on both phone and website should sync up automatically. Everything should post to Facebook, or log-in through Facebook. With a solid website as its base, and a convenient way to share pictures on the social networking site, we believe this would be an app our participants would actually use.

4. SOCIAL DIMENSIONS OF THE COOKING EXPERIENCE

Sarah Reed and Rebeca Carranza

RESEARCH FINDINGS

Cooking has always been a largely social experience. The kitchen is commonly referred to today as the “heart of the home” and is where family and friends gather regularly to eat and share each other’s company. With the introduction of new technology, everyday cooks and foodies have begun to employ these tools as a means of learning and sharing information about the cooking experience. We found that every one of our participants either used media and technology to be social with others in regard to food, or expressed a desire to do so. This fact tells us that sociality is extremely important to kitchen media. In this chapter, we will discuss some of the emerging social themes we found.

THE CYCLE OF BEFORE, DURING, AND AFTER

As we discussed in Chapter 2, we found that there is a cycle of behavior that falls into categories of Before, During, and After the cooking process. Briefly discussing this finding from a social standpoint will help us to understand the various levels of interaction throughout these cycles, and where there are consumer needs that have yet to be filled.

Before the Cooking Process

Before the cooking process began, many social interactions regularly occurred with all of our participants. Jane, our biggest “foodie” interviewee, had over the years increased her online social network immensely and continued to do so. Often when she wished to make a culturally authentic meal, she would go online and find someone on her Facebook who would be interested in sharing their recipes with her. Jane had a specific email account to which cooking websites and brands could contact her to do surveys. Her friends and family also sent food information to this account. She often communicated with friends and family on her BlackBerry in order to discuss and learn new recipes and preferences. Jane had a teenage son who had latched on to his mother’s love of food, and found intriguing recipes online or on television and emailed them to her as a request. This was also the case with Perry and Jordan. Their son was so bored with the regular meal routine, that he constantly emailed Jordan to make specific requests.

Our second true foodie, Michael, expressed the importance of the rating and commentary sections of a recipe website. He would not even consider a recipe if it did not have at least 100 excellent ratings and comments. He also enjoyed qualitative how-to videos in order to learn new cooking skills and styles. He placed a lot of emphasis on the learning aspects of media. Mom and participant Rachael often called or texted family and friends to ask for recipes, suggestions, and preferences. Her kids liked to watch many cooking shows like *Iron Chef* and would ask her if they could help make foods seen on these programs. When watching a cooking show for entertainment, Rachael would look up specific techniques used before she started cooking a meal. Annie, who is married to participant George, regularly texted her mother in Australia, a chef, for tips, recipes, and advice on how to whip something up. Rev, who is another participant with a large family, sometimes called her friends for help before starting on a new dish. Rev also texted family members what she was cooking for them every day. Angela used the Food Network website for meals and looked specifically at the difficulty and quality ratings from other users. In addition, she received emails from websites as well as family members. Epiphany has had the least food social interaction because she lives alone. However, like Jane and Angela, she also used her email to talk about food with friends and family.

During the Cooking Process

Very little social interaction through media happened during the actual cooking process. The only participants who contacted each other when creating a meal were Annie and George. If Annie was running errands and had something in the oven that needed to be taken out, she would call or text George, who worked close by, to run home and attend to it. Rachael watched Food Network as instruction for cooking a dish as the program was on, but was the only participant to do so. Jane and Michael used YouTube videos for instruction sometimes as they were cooking.

After the Cooking Process

After the cooking process, all of the events in the “Before” section also happen here, with a few additions: photo and recipe sharing, as well as commenting on and rating recipes.

SHARING THE EFFECTS OF THE COOKING EXPERIENCE THROUGH MEDIA

Social media sites were used very frequently by our participants in order to share information. This theme was most apparent in Jane, who started out on Facebook with a little over 30 friends and now has over 1,700. In this manner, she met people from all over the world who were interested in her cooking. She increased her knowledge and social base and learned immensely from others who also love to cook. She had a love of culturally authentic cuisine and asked for recipes from others who actually grew up with these food traditions through Facebook. She posted her own, as well as modified recipes on her Facebook and took pictures of the dishes she has made.

Sharing photos was the most common social networking feature used by many of our participants. Our second foodie, Michael often posted special meals he has made to his Facebook. Parents of a large family, George and Annie, did this for holidays and events. Wife and mother Rachael shared photos on Facebook of her cake decorating and flower business with friends, family, and potential clients. Participant Rev often received photos from friends and family of their meals in order to create a spirit of competition. Rev’s best friend was a baker, her sister a gourmet chef, and her husband’s ex-wife was an excellent cook. Through texting photos, these women competed with her on the quality of their food. Even Angela, our best example of only cooking for necessity, occasionally took photos of meals she has made and texted them to her mother-in-law.

This showed us that sharing and feeling satisfied with hard work in the kitchen was very valued, even if it occasionally had a competitive streak. Another participant, Epiphany, also expressed a desire to share her weight-loss progress with her friends and family through the Weight Watchers website. However, none of these people were members and she felt uncomfortable sharing her health accomplishments with strangers. What was interesting was that the website most repeatedly talked about in this sharing process was Facebook, which is not a food site. This indicated that not everyone was a part of many food-specific websites and media outlets, but they still wanted to be food social.

TECHNOLOGY AS A TOOL FOR COMMUNICATING COOKING INFORMATION

One of the most interesting themes in examining the class's fieldwork was how families communicated information about food through media and devices. This was typically done before or at the beginning of the cooking process. One of these examples was Perry and Jordan, a divorced couple with two kids who still lived in the same house. The ex-wife, Jordan, would find a recipe on her iPad and put it on the kitchen counter for her ex-husband, Perry, to find. Perry would then make the recipe and set out the food for the family members to have at their leisure. Throughout the interview, it became apparent how integral the iPad was to the communication in the house. The iPad came up many times in conversation and was the only apparent way for Perry and Jordan to communicate because they did not like to be in the same room together. This situation was unique, to say the least, but it shows how important technology has become to communication within this family unit.

Most other family communication examples within this theme did not use media in this manner, but it was still is a tool. Extreme foodie Jane had a teenage son who very commonly found out about a recipe he had seen on a television program, looked up the recipe online, and emailed it to her. Annie frequently texted her Mom in Australia for tips, shortcuts, and recipes. Rachael was another family example of this behavior. She often called and texted family and friends to ask for recipes and preferences. Her kids watched many cooking television shows like *Iron Chef* and would ask her if they could help to make these foods. Angela commonly talked to her mother-in-law on the phone to ask for a recipe. Participant Rev mentioned in her interview how she called her baker best friend to ask for recipe ideas. Another

important aspect of Rev's routine was that she would send out a mass text message to her family to let them know the menu of the day. However, her family's cell phones did not have "Reply All" feature, which frustrated her.

RELATING TO CHEFS AND FOOD THROUGH VIDEO

Another aspect of sociality that was repeated throughout our interviews was using online videos to learn new recipes and techniques. Video, especially when used to instruct the viewer, is a form of communication that is more personal and direct than text. Video is a means of connecting people and ideas and therefore it is inherently social. Being able to see the chef create the recipe or actively show how to perfect a technique is an extremely effective way to learn cooking methods because it is more explicit and hands-on.

During his interview, Michael spoke about how he once paid for a video-based online cooking school. The site allowed for students to download these videos permanently as well as chat with the chefs teaching in them. He really enjoyed that he could instantly communicate with the chef and gets his questions answered. Now that he is no longer a member on the site, he used YouTube and watched many cooking shows on television, but expressed a frustration and disconnect with "celebrity chefs" on Food Network. He disapproved of the branding and advertisements on the Food Network channel and website and wanted something more relatable. He looks to sources where he feels he can rely more on the quality than on the brand.

Jane regularly subscribed to chefs that she enjoyed on YouTube. She would watch their videos a few times before she started the recipe, and then would watch it again while she was cooking it. In her interview, Jane pulled up a YouTube video of a Latina woman making a homemade video of a masa recipe. This was interesting because this was our second foodie participant who actively looked for more relatable and authentic videos as opposed to those on the Food Network website.

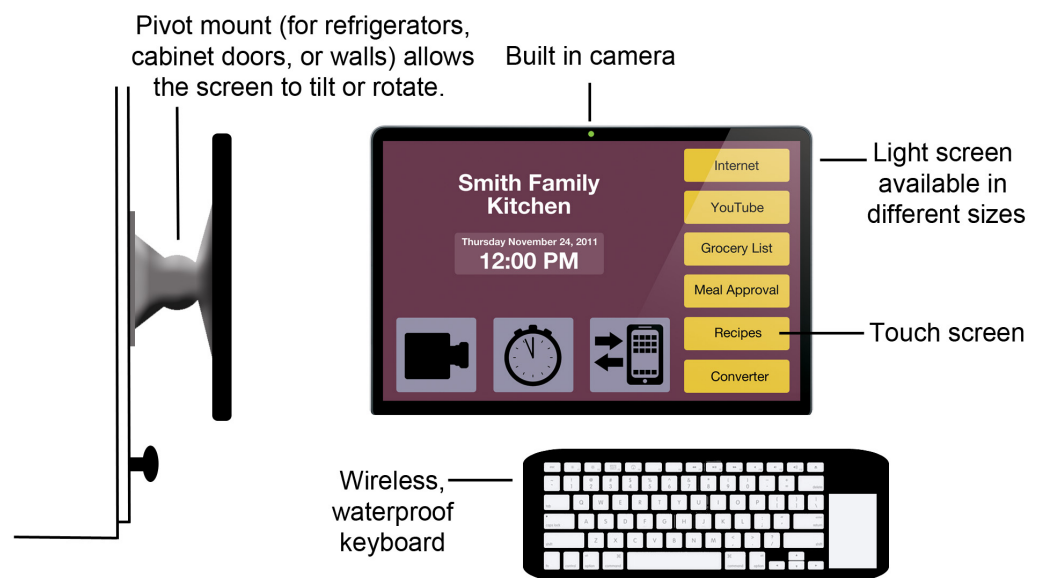
Rachael was another one of our participants who used video for cooking instruction frequently. When she cooked, she always had the television on to the Food Network or Cooking Channel. Often, she would make the recipe right along with the program as well as check the website. If the chef said a food term or technique she did not understand, she looked it up immediately on her computer to see if there was an

available online video for explanation. For example, when watching a Food Network show, she heard the term “julienne a bell pepper”. She then went to her laptop and found an instructional video on eHow.com.

DESIGN IDEAS

From the data we gathered, we believe that it would be beneficial to design a media device that encourages and facilitates both physical and virtual social interactions before, during and after the cooking experience. We recommend the fabrication of a stationary kitchen computer with the following capabilities:

Figure 5



- The ability to mount the screen onto any flat surface (kitchen cabinet doors, refrigerators, walls, etc.) and to pivot it in different directions (Figure 5).
 - Mounting the screen in the kitchen allows for it to be out of the way during cooking
 - The pivoting capability allows for a clear view of multiple kitchen angles

- A touch screen interface system (Figure 5).
 - A touch screen is very literal and makes the computer easy to manipulate for people of all ages that might take part in the cooking experience
 - A touch screen eliminates the use of a keyboard, which saves room in the kitchen
- A wireless and waterproof keyboard for optional use (Figure 5).
 - Clients have the option to use a physical (rather than touch screen) keyboard if they feel more comfortable doing so
 - The wireless and waterproof features allow for the keyboard to be stored or moved anywhere in the kitchen without the risk of water (steam) damage

Figure 6



- A built-in camera on the computer screen (Figures 5 and 6).
 - Having a camera on the screen allows for people to share recordings of their cooking process, take still photos of the cooking process or finished meals, or take part in virtual cooking experiences with other people in real time, through “live calls”

- “Live calls” can be made to any other media device (phones, iPads, laptops, etc.) that has video camera capabilities
- With the built-in camera clients have the ability to form virtual cooking/food groups that can gather at any time without leaving the comfort of their individual kitchens
- People who use the camera to make “live calls” to others can easily ask for advice or simply talk to people during the cooking experience, instead of having to do it before
- Video capabilities become especially useful during the holidays if families can’t be together, but would still like to experience cooking special meals together
- A voice command option
 - By using voice command, clients have the ability to control their computer from anywhere in the kitchen if they are unable or simply do not want to use their hands

Figure 7



- The capability to sync the stationary or “main” computer with other media (phones, tablets, laptops, desktops)
 - Media syncing allows for people to access information (recipes, grocery lists, menus, etc.) that they have saved or bookmarked on the main kitchen computer from other devices
 - The devices that have been synced with the main computer can also receive messages or action prompts sent from the main system. For example: the interface of the main computer could include a feature that allows for clients to prompt family members (on their personal devices) for their opinions about the proposed menu for the day. The feedback from family members could then be recorded and stored at the main computer in the kitchen (Figures 7 and 8).

Figure 8



Other basic functions the computer would offer:

- Internet access
 - People can access YouTube, cooking and non-cooking websites and social networks (such as Facebook and Pinterest) so that they can watch and share cooking videos, take part in cooking dialogues on websites, post pictures and recipes, bookmark recipes and email recipes.

- With internet access, people can watch online TV shows or listen to music through online radio, while cooking
- Customized, cooking-oriented interface system
 - Meal suggestion/approval feature
 - Grocery list creator
 - Recipe databases
 - Measurement converter
 - Timer

5. THE FOODIE ORIENTATION

Steven K. Wilson and XuHao Yang

INTRODUCTION

A PASSION FOR FOOD AND MEDIA

Some participants showed an almost obsessive fascination with food and cooking. For them, cooking is a hobby to which they tirelessly devoted much of their time. The foodies in this project were identified as Michael and Jane. The participant Rachael demonstrated some of the tendencies of the foodies, but because of family and time constraints can be also referred to as an “efficiency” participant. Foodies were particularly involved with gathering information from a variety of media sources for creating future meals. A shift would frequently occur from non-interactive media like television and magazines to extensive web research. In our analysis, the foodies were more engaged in online research than the other types of participants. This exploration can be seen as a manifestation of their passion for cooking, which may also be a celebration of their identities as foodies.

A HUNGER FOR INFORMATION AND SOCIAL SHARING

The foodies had many interests which were facilitated by online research. Michael was interested in the history of spices, professional techniques and chef quality knives. Jane researched her husband’s genealogy to create ethnic dishes to share with his family. She also considered various religions and cultures when researching holiday meals. In early October, when she was interviewed, Jane was already researching Christmas dishes and looking for new techniques. The foodies also

avored websites with customizable features such as Allrecipes.com. There was also a strong interest in storing recipes on cooking websites, bookmarking and visits to the Food Network's website for exclusive content. A common theme of the foodies' orientation was a continuous or cyclical meal planning. Planning was observed to take place during the cooking process before, during and after through several outlets. Photographs of completed dishes were also shared via Facebook. Jane used Facebook to share pictures and recipes with her friends list growing to 1,700 friends as a result of her cooking activities. A laptop was the preferred method of using media in the kitchen for all three participants. The foodies cited the smaller screen size of cell phones as the reason for not using their laptops in the kitchen. However, the functionality and content of the television can be translated to a device such as a phone.

BEFORE THE COOKING EXPERIENCE

RESEARCH FINDINGS

Meal Planning Across Media

Michael, Jane and Rachael used several methods before the cooking experience began. Jane was very fond of recipes which were emailed to her by companies and websites. She created a special email address dedicated to this purpose and received coupons for her participation in surveys. Both Rachael and Jane were very interested in magazines which they subscribed and collected for recipes. Jane was very interested in food presentation and would find recipes while looking at tablescapes in magazines and online. Michael and Jane would plan meals around coupons delivered by email and text message. In some instances, television and web content was relayed to Jane and Rachael by their children. This information would be further researched and considered in the planning of future meals. Michael expressed the desire to use his Android phone while grocery shopping but was unable to do so because of connectivity and reception issues. Michael printed shopping lists from his phone with wireless printing and took the lists to the store. Jane used her BlackBerry in supermarkets, but like Michael, she did not use mobile cooking applications. However, Jane would search for recipes online from her phone to confirm ingredients in the store.

Meal Planning Online

All three participants used a laptop to access information on various websites to assist them in meal planning. The foodies also commented they had several websites bookmarked for reference. Allrecipes.com was mentioned by all of them, as well as the websites of cable networks specializing in cooking-related programming. Michael and Rachael seriously considered the recipe rating system of Allrecipes.com when selecting dishes to try. Rachael also liked being able to see how many other users had saved a recipe at Allrecipes.com and used this as an additional criterion for selecting recipes. All three participants visited the Food Network's website, but had their own issues with the level of advertising, functionality, reliability of information, picture quality and reduced sociality of the website. However, the exclusive recipes of the celebrity chefs featured on the network were the predominant reason for visiting. The table below illustrates the level of media use of the foodies before the cooking experience.

MEDIA USAGE OF FOODIES BEFORE THE COOKING EXPERIENCE			
Source	Participants		
	Michael	Jane	Rachael
Internet Browsing	•	•	•
Bookmarking websites	•	•	•
Allrecipes.com	•	•	•
Foodnetwork.com	•	•	•
Email		•	
Television	•	•	•
Magazines		•	•
Coupons	•	•	
Shopping with Smartphone		•	

DESIGN IDEAS

Based on the data gathered from the participants, the participants definitely searched and collected as much cooking information as possible for preparing their

dishes. For this reason, they needed a variety of media, including physical or digital tools to acquire the information that they needed. However, usually these different types of media could not connect to one another, such as magazines, cell phones, and laptops. Moreover, it was obvious that the laptop was the preferred media in kitchen. Last but not least, the foodies tended to choose a special type of service from their favorite websites, like customizable recipes and coupons.

Therefore, there is a need to construct a “kitchen command network”, an internal network that could connect those distinct types of devices, and the laptop could be identified as a central controller because of its natural characteristics, receiving and displaying information. The role between the “central controller” and media devices is illustrated in Figure 9 in the General Design Ideas section of this chapter.

Also, a “sharing system”, an external network that would bring together different media and collect the information that the foodies are looking for should be established. For example, useful information from magazines and coupons would be gathered based on the users’ preferences, and could be downloaded at convenient times as part of a paid subscription service. All the foodie participants expressed that they did not use apps, which might imply that the services of current apps are not a fit for their needs. This “sharing system”, the external network could be a good option for the foodies.

Moreover, some participants complained that they did not want to search information on a cell phone since it has a small screen, but simultaneously, it was not convenient to bring the laptop for grocery shopping because of the larger screen size. Thus, here we propose a laptop or a tablet that can be folded for easier portability to the supermarket or for use in smaller areas of the kitchen. This will give the user a larger screen when that is necessary or a smaller screen if needed. The development of the “central controller” as a folding tablet is illustrated in Figure 10 in the General Design Ideas section of this chapter.

DURING THE COOKING EXPERIENCE

RESEARCH FINDINGS

Instructional Web Videos and Music

The foodies continued to use media during the cooking process. Michael, Jane and Rachael had their laptops in a semi-stationary location throughout the cooking experience. The participants carefully placed their laptops in special locations to avoid water damage, food spills, heat damage and falling off of the counter. Occasionally, they would rotate the device for viewing depending on their position in the kitchen. Internet usage was mainly for in-process instruction, but also served as a continuation of planning for upcoming meals. Websites were used for reference and instructional web clips came from a variety of sources such as YouTube, eHow.com, Hulu and embedded video from other sites. These clips were usually discovered by conducting a Google search with the exception of Jane. Michael reported using YouTube rarely for instructional videos, but he and his girlfriend would play music videos for background music. Michael preferred the more professional quality videos from websites such as the online culinary school, Rouxbe.com. Although he was no longer a member, Michael had saved dozens of these videos to his hard drive for reference. Both Michael and Jane also used measurement conversion websites while cooking.

Television Usage and Smartphones in the Kitchen

Michael and Jane had television sets near their kitchens and Rachael planned to add one in the near future. Rachael expressed using a television as a source of ideas for cooking in the past before moving to her new home. Television use while cooking was an involved process occurring in several stages. First, in many cases, audio content was delivered because the participants were unable to view the screen at all times in the kitchen. Second, viewing occurred when the audio content interested the participant by their own auditory recognition or was verbally facilitated by a member of the household. Personal communication from Michael's girlfriend, Jane's son and Rachael's sons who were watching cooking shows in a different room would alert them to view the television at times. Third, the participants would conduct web searches to learn more about a topic to be used in planning a future meal. Audio, video, and interactive internet usage were all utilized during the cooking experience in this manner. Michael would use the stopwatch feature on his smartphone as a kitchen timer and occasionally played music from web services

such as Pandora while cooking. The table below illustrates the level of media use of the foodies during the cooking experience.

MEDIA USAGE OF FOODIES DURING THE COOKING EXPERIENCE			
Source	Participants		
	Michael	Jane	Rachael
Laptop in Kitchen	•	•	•
Internet Browsing	•	•	•
Refer to websites for recipe directions	•	•	•
Music from YouTube	•		
Online How-to Videos	•	•	•
Measurement Conversion Websites	•	•	
Television near the Kitchen	•	•	
Television listening	•	•	
Television viewing	•	•	
Television content relayed by another person	•	•	•
Web research from television content	•	•	•
Music from smartphone	•		
Smartphone as a Timer	•		

DESIGN IDEAS

During the cooking process, foodies would primarily use their laptops. At the same time, the television set was turned on as an audio background, but they indicated that the cooking show would sometimes spark new ideas. However, they would

confirm the ideas online by utilizing the laptops. Furthermore, the cell phone occasionally played the role of timer.

Based on these findings, we suggest a “kitchen command network”, an internal network, to link with the television. Furthermore, this network could be extended to connect all the appliances in the kitchen, such as the refrigerator, the oven, the grill, the microwave, and the stove. On the “central controller,” the laptop, users could control the cooking time (as a timer), the on-off switches of the various appliances, the display of different cooking shows, and information searches. The foodies are multimedia users, so the “kitchen command network” integrates all the functions of different media by one controller, the laptop. The role between the “central controller” and kitchen appliances is illustrated in Figure 11 in the General Design Ideas section of this chapter.

Also, since the computer is not produced particularly for use in the kitchen, there are some challenges to using it there, like some participants were afraid of damaging their laptop. This is exactly one of the shortcomings of using a computer in the kitchen. There is a need to redesign the laptop in a form that would be more suitable to the cooking experience. For instance, a well-designed stand could affix the laptop to the place where the users can use it expediently. The development of a durable kitchen-ready “central controller” is illustrated in Figure 10 in the General Design Ideas section of this chapter.

AFTER THE COOKING EXPERIENCE

RESEARCH FINDINGS

Social Sharing and Celebrating

The foodies further engaged in media use after the cooking experience. Both Michael and Jane photographed and posted dishes to Facebook. Michael would use his Android phone to take a picture and publish it to Facebook. Rachael would take pictures of her wedding cakes to show her friends and to promote her side business. Jane used Facebook to share information and has become a celebrity chef in a way by acquiring 1,700 Facebook friends who added her to gain access to her personal food pictures and recipes. She also reported sharing pictures and videos on Facebook that she found online. Jane is constantly looking for new recipes from her

growing list of Facebook friends. She also seeks recipes from Facebook friends who appear to have a different ethnic heritage from her in the hopes of obtaining authentic ethnic recipes. When Michael was a member of the Rouxbe.com website, he really liked the internet chat capabilities with the chefs and enjoyed the social aspects of the site.

Meal Planning Continues

Michael and Rachael would start planning their next meal immediately after finishing a cooking experience which was facilitated in several ways including web browsing. Michael would often continue to watch television while browsing for ideas online after his cooking experiences. Often, Michael would use the pantry feature of Allrecipes.com to avoid shopping for his next meal and to utilize his present ingredients. Jane completed surveys from food companies about products she had just used to get coupons. She also reported returning to recipe websites to comment and sometimes argue about healthy recipe substitutions with other users. Sharing, celebrating and meal planning are emergent themes after the cooking process for the foodies. The table below illustrates the level of media use of the foodies after the cooking experience.

MEDIA USAGE OF FOODIES AFTER THE COOKING EXPERIENCE			
Source	Participants		
	Michael	Jane	Rachael
Food Photography	•	•	•
Facebook Sharing (laptop)		•	
Facebook Sharing (smartphone)	•		
Commenting on Recipe Websites		•	
Survey Participation for Coupons		•	
Future Meal Planning by Web Browsing	•	•	
Future Meal Planning at Allrecipes.com	•		
Continued Television Use	•	•	

DESIGN IDEAS

All the foodies liked posting pictures, favorite recipes, or cooking videos on Facebook in order to share them with their friends and families. However, there was a problem when they shared information on Facebook: Those whom the user wanted to share with might miss the message, but others whom the user did not want to share might receive them several times. It can be generalized as this model: people (foodies) – Facebook (many “friends”) – people (those with whom the foodies want to share). Indeed, some of the foodies may want to present their cooking to “the public”, so Facebook is a good choice. Nonetheless, for those who just want to connect directly to their intimate friends, we suggest another model: people – people. The “sharing system” or external network could include this model. An ideal design is that the users can use the central-controller tablet to communicate with his or her families and friends directly. The photos of completed

dishes or favorite recipes can be sent to friends directly, and they can discuss with each other via the platform of the sharing system.

Furthermore, once the “kitchen command network” has been established, the foodies can get the necessary information to plan their next meal. Indeed, this network can be seen as an intelligent system that connects all appliances in kitchen and provides all the information that the user needs. For example, the user can check the contents of his or her pantry and refrigerator for remaining ingredients after cooking on the central controller device. When the user is out of a particular ingredient, this intelligent system will notify him or her that it is time to go shopping.

GENERAL DESIGN IDEAS

In general, the foodies are multimedia users, and they use media intensively. Hence, the fundamental design idea is to combine all the different functions from different media into one system in order to achieve control and to facilitate the arrangement of all the cooking information easily and conveniently. Also, we suggest three aspects of design ideas based on patterns generalized from the fieldnotes:

- I. The Kitchen Command Network, an internal software network (Figures 9 and 11.)
 - It can connect all the cooking appliances, and the central-controller is the tablet, which is particularly designed for use in the kitchen.
 - It is an intelligent system.
 - It can connect with the television set and the user’s cell phone.
 - The tablet also provides users additional functions: music player, timer, and a way to search for information.

- II. The Sharing System, a customizable external social network (Figures 9 and 11.)
 - Mainly, the connector between internal and external network is the tablet.
 - It can be considered a kind of information provider or app.
 - It can provide specific customizable information for multiple users.
 - People-people type of model (a P2P communication platform).

III. Redesigning the laptop (Figure 10)

- Tablet-like computer
- It includes some types of protection: water-proof and grease-proof.
- Well-designed stand that is a good fit for kitchen environment.
- Folding tablet that is portable for shopping.

Figure 9. Central Controller Links Devices in the Kitchen Command Network and Sharing System

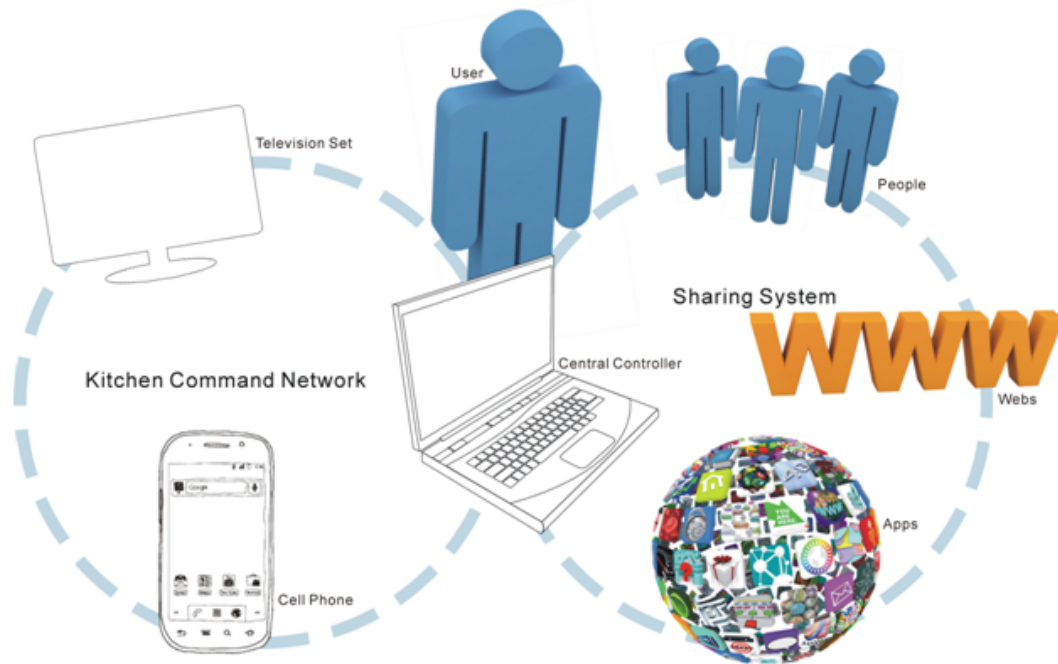


Figure 10. Evolution of Central Controller from Laptop to Durable Folding Tablet

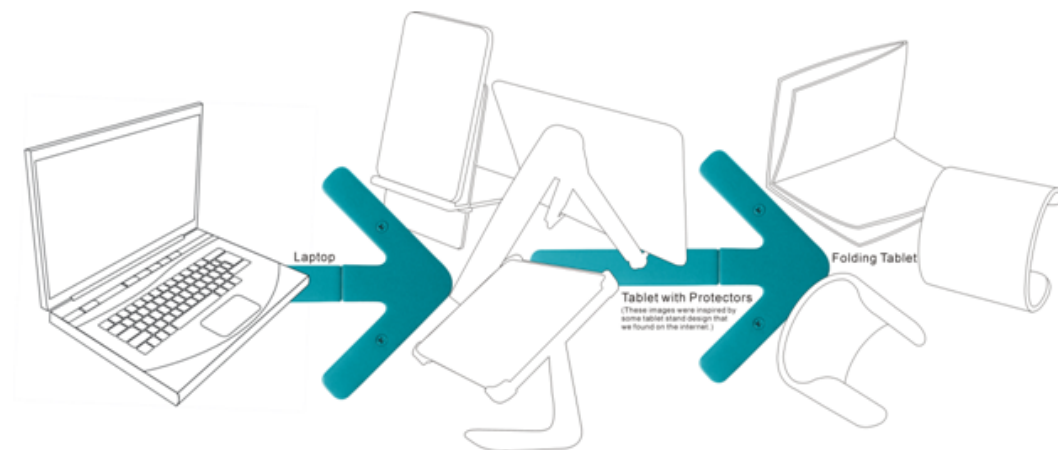


Figure 11. Central Controller Links Appliances in Kitchen Command Network and Sharing System



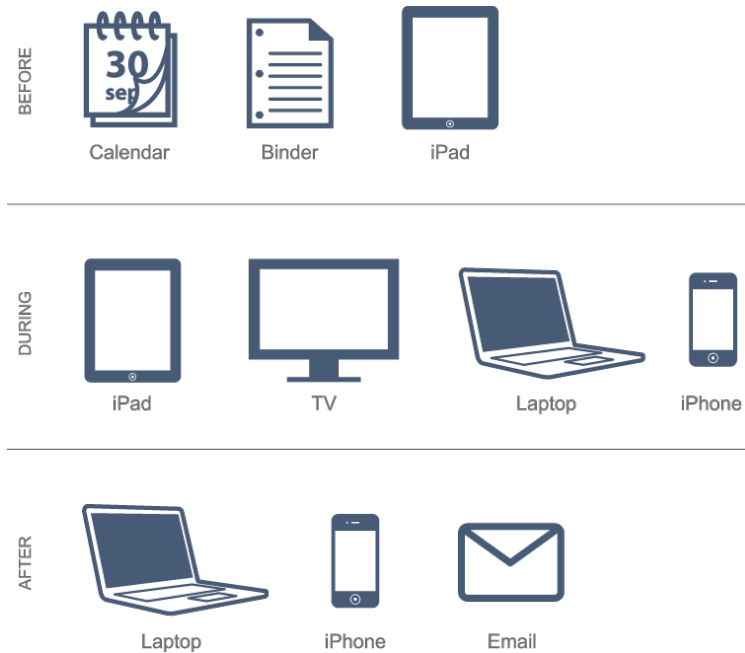
6. THE EFFICIENCY ORIENTATION

Brett Brazell, John Hicks, and Victoria Schlieder

INTRODUCTION

This chapter examines the use of media in the kitchen of people with large, busy families. These families are concerned with time, and mostly use media in the kitchen to help them be more efficient. The key words here are: quick, easy, and simple. These efficiency oriented individuals planned their meals to give them more time to devote to their families and jobs. While all of the participants used media differently, there were some commonalities found through the course of class discussion and a review of field note documents and videos. Patterns were found in the ways that participants used media devices before, during, and after a cooking experience. These patterns are illustrated in Figure 12 and discussed below.

Figure 12. Media Use of Efficiency Orientation



RESEARCH FINDINGS

BEFORE THE COOKING PROCESS

Media that Plan Meals

Planning ahead is crucial to busy families. This translates into planning meals up to a week in advance. There are many ways that our participants did this, from keeping a binder full of meal plans, to using the grocery list feature of favored websites or apps. Our participants used the media available to them to make their lives easier and to help make meal times go off without a hitch.

Angela was a planner. She created her own form of media, a binder full of meal plans. She gathered recipes primarily from the internet and “old fashioned” cookbooks. She began her “cook book” binder to help cut down on the “chaos” that surrounded her busy family during their everyday lives. Her children were involved in sports and she was a member of her younger child’s PTA; all of this took a lot of time out of the day. By planning meals a week in advance, it was one less thing she had to really

worry about. At the time that she was interviewed for this study she had only been using the cookbook for a few weeks. She hoped to be able to reuse the meal plans that she had in the binder once she accumulated enough.

Rachael also used media to help her plan out her family's meals. She would create a weekly menu based on recipes that she found from various online sources (and also some paper sources, i.e. magazines). Of the meals she planned for the week she let her children choose what they wanted on a particular day. Planning ahead allowed her to make sure that she had all of the ingredients that she needed for the week so she avoided wasting time running to the grocery store.

Ex-husband and wife duo who still shared a home, Jordan and Perry planned their meals on a much shorter time scale, usually finding the recipes on the iPad the day of the meal. This was still beneficial to their busy schedules because Jordan (the ex-wife) would find the recipes and save them (on the device) to let Perry (the ex-husband) know to make it for dinner. This saved a bit of time as one person was not always doing the searching and the cooking.

Quick and Easy Websites

Efficiency oriented individuals tended to use the simplest, quickest sources of media that they could. All of our participants stuck to websites (as opposed to apps) to find recipes and other cooking tips, but the extent to which they used the websites gives us great insight into their way of life. Those concerned with time did not spend a lot of time looking up recipes; usually they had a meal in mind and used only a few select websites, or used Google and selected one of the top results; there was not a lot of searching involved. Websites mentioned often included allrecipes.com, Kraft.com, and Foodnetwork.com. To help them quickly determine which recipes to make, efficiency minded people looked for recipe rating systems and photos of completed dishes on cooking websites.

Rating Systems

Most cooking websites offer a rating system, whereby a certain recipe is given stars based on how good it is (usually determined by other users). Our efficiency oriented participants often first looked at the number of stars a recipe received before even looking at what the recipe entailed. Rachael would not even look at recipes on allrecipes.com unless they had at least four and half stars (out of five). If a recipe

received fewer stars than this, she felt it was not good, and was not worth her time. Angela also looked at the star rating of recipes, especially on Food Network's website; also on this website is a simple rating system that depicts difficulty. Angela said she looked for 'easy' recipes because for her, that equated to quick and simple.

Photos of Completed Dishes

Many recipe websites frequented by our efficiency oriented participants featured photographs of the completed recipe. Often times our participants looked specifically for recipes that provided pictures. Rachael preferred websites that offered good pictures of the completed dish, so she could see what the dish was supposed to look like, and so she could compare her completed dish.

Grocery Lists

Efficiency oriented individuals liked to be efficient in many ways. This often included putting together a grocery list of items needed for recipes or everyday kitchen use (i.e. milk, sugar, etc.). Many people are now using forms of media as either a grocery list itself, or as a tool to help compile a grocery list. For efficiency minded people, this took the form of an app or website that allowed customization and quick input. Angela used a grocery list app on her iPhone, this was also the only cooking related app she used. Angela preferred using her app as opposed to a paper list because it allowed her to just quickly enter an item in. This app also allowed for grocery lists to be compiled for each individual store she shopped at. This is a much more organized method for busy mothers than traditional pen and paper grocery lists (according to Angela).

DURING THE COOKING PROCESS

Media that Allow for Multi-Tasking

Being able to do multiple things at the same time is very important for busy individuals. This is no different for kitchen related activities. Our findings are that efficiency oriented individuals do not waste the time spare time they might have when they are in the kitchen preparing a meal. They use their time in the kitchen to get other things done. Angela caught up on her primetime television shows and emailed 'constantly' while making a meal. One instance she described (and we believe it probably happens frequently), was when she was eating lunch, watching television, and preparing dinner all at the same time. Jordan and Perry also watched non cooking related television shows while cooking.

Watch Instructional Videos/Cooking Shows to Get Ideas

Another task that can fall under this category is bringing up instructional videos while cooking to learn how to do something new. Often times, instead of taking the time before beginning the cooking process, Rachael would pull up instructional videos on her laptop while cooking. Rachael also watched cooking shows sometimes to get ideas for another meal; the show was usually just on in the background while she was cooking.

Placement of Devices because of Children

Busy families with a lot of children are often chaotic, especially if the children are small. A few of our participants took this into consideration when deciding where to place their media devices while preparing meals to avoid the risk of damaging the devices. Angela would place her laptop in only 2 places in the kitchen: on the desk (which is a part of the kitchen) or on the countertop next to her stove. These places were either high enough or sturdy enough that the risk of knocking the laptop down was slim. Rachael also took her messy children into account when deciding where not to place her laptop; it did not go near the sink or the bar, where the kids might be eating or drinking.

Laptop/iPad Open to Recipe to Be Easily Viewable

Our efficiency oriented participants usually did not print out recipes that they found to use while cooking; they displayed it on their laptop or iPad (in Jordan and Perry's case). They positioned the device so they could easily see it from wherever they were doing their preparation or cooking. Angela preferred doing this to printing out a paper recipe to use in the kitchen because paper, or a cookbook, lies on the counter and can get dirty. A laptop can be kept far enough away to not get dirty.

AFTER THE COOKING PROCESS

Media use after a cooking experience was somewhat limited for our efficiency minded individuals; the point of being efficient was to minimize time needed after a meal. Most of the time after a cooking experience was devoted to preparing for the next meal. This could include looking at a calendar (in Rachael's case) or doing some Internet searching. Rachael would make sure that she had all of the ingredients needed for the next day's meal; Angela would add any items she needed to her grocery list app on her iPhone. If Angela enjoyed a particular meal or thought any of

her friends would enjoy it, she emailed them the recipe to help them be more efficient in their meal planning.

DESIGN IDEAS

Given that our research participants were predominantly focused on efficiency and time with regards to kitchen media, we have compiled some design implications to this end, summarized in Figure 13. Further, we have separated our design recommendations into two categories: Search and Applications.

Figure 13. Design Ideas for Efficiency Orientation



SEARCH

Most of our participants searched for their recipes across multiple websites, including using sites like Food Network and Allrecipes.com directly, or using search engines like Google as a gateway onto recipe websites. To improve search efficiency, we suggest the following design recommendations for recipe searching:

- Give users the ability to customize how recipes are presented to them, primarily by filtering recipes through user created categories. Our findings suggest the most useful tags would be ease of cooking and by the ingredients used in the recipe.

- Give users the ability to sort their search results based on specified search criteria. These criteria could include, but are not limited to: number of reviews, number of “stars” or rating level, most downloaded, most popular, etc.

APPLICATIONS

Many of our participants found themselves with little time for preparation, due to family, school and work. To ease the process of planning and organizing meals, we suggest the following design ideas:

- Create a cross-platform application or system with the primary purpose of organizing meals from planning to preparation.
- Give users the ability to construct and customize meal plans/calendars, as well as integrate grocery shopping into the meal plans and calendar.
 - Scan groceries with a phone or barcode scanner, when purchased at grocery store. Compile data into a grocery stocking list.
 - Upload stocking information from grocery store to hub, then provide information across multiple media platforms, ie cell phones, web browsers, etc.
 - Integrate stocking system directly into kitchen appliances, namely refrigerators and freezers.
 - Suggest recipes based on the amount of food in the user’s possession. If the user has a 18lb turkey leftover from Thanksgiving, the system would suggest possible recipes like Turkey Soup.
 - Provide “unplanned” recipes to the user based on what they have listed in the system as being in their fridge and/or cabinets.
- Use previous recipe search queries to suggest potentially interesting recipes to the user. These recipes would be sent directly to the user through text message or email, or linked into an app or website.
- Create a system where either the system or the user’s friends would suggest recipes that the user’s friends and family have made. This system should also provide complementary recipes for whatever they are cooking.
- Provide users with multiple ways of saving recipes. Digital cookbooks, bookmarking and the ability to print out recipes and meal plans are all examples of possible methods for doing this.

7. THE HEALTH ORIENTATION

Jennifer Dubois and Mercy Lomelin

RESEARCH FINDINGS

In this chapter, we describe the cooking-related media use of people who focus on the health aspect of food preparation. A health orientation was primarily displayed in the beginning stages of the participants' cooking experiences. We believe that this is because the health orientation leads to a focus on *planning* meals. We did not observe much sociality around the health orientation. While one participant expressed a wish for more sociality, she did not want to engage with people outside of her existing social circles.

In our study, only a single participant's cooking experiences were completely dominated by a health orientation. This was Epiphany. However, for several other participants, a health orientation combined with other orientations to shape their cooking experiences.

We split up the chapter into three different parts: before the cooking took place, during, and after the cooking. Within each of these parts, we describe the media usage of each participant who displayed a health orientation.

BEFORE THE COOKING PROCESS

Epiphany

Epiphany was the most health conscious research participant. She was enrolled in Weight Watchers, meaning that she kept track of her eating habits and counted her calories as well. Weight Watchers helped her keep everything organized, which complemented her personality; she described her house as clean and classically decorated.

Epiphany had a BlackBerry, but did not know if any Weight Watchers applications were available for it. If they were available, she said, she would consider purchasing them. She did not like the blogging portion of the website because she did not like to share her recipes or food experiences with anyone other than her friends.

She also noted that she took pictures of the nutrition labels when she went to the grocery store. When she went home, she input the information on to the Weight Watchers website and it automatically assigned point values corresponding to each nutrition label. She liked to use this process with foods that she had not tried before, although she was not a big fan of keeping a record of everything she ate because the Weight Watchers meal tracker began on Sundays and her week began on Mondays.

Rachael

Rachael and her husband participated in bodybuilding. However, she was currently on an athletic off-season, so she did not talk about healthy eating as much as she might have if bodybuilding were in-season. She mentioned that one of the grocery stores they use is Sprouts Farmers Market, which is known for its healthy foods. She uses the online website allrecipes.com to prepare an online grocery list that she prints out to take with her to the grocery store. She was one of the participants who said that if other websites offered the feature of online grocery lists, they would consider using those as well.

Annie

George and Annie were a married couple. Even though we enlisted the help of George when the interview began, it was clear that Anne was the primary cook in the household and that George's primary charge was the grill outside. George and Annie had a total of three children and were busy with all sorts of different activities, but they tried to eat as healthy as possible. On the iPad, which Annie brought into the

kitchen, she used a search engine of Yahoo called Yahoo Shine. This engine caters to the Yahoo community by offering an abundance of services for its visitors, including a cooking section on which Annie searched for healthy recipes.

Jane

Jane was the participant who seemed not to mind as much about healthy eating habits. She tended to eat whatever tasted best to her or was recommended to her by a friend or family member. In spite of this, she did occasionally prepare healthy dishes based on specific food preferences: for instance, her son liked spinach, so she used a salad recipe that contained spinach to please her son. She had a laptop in her kitchen that she left on its platform at all times, on which she searched for recipes before she started to cook or while she was cooking.

DURING THE COOKING PROCESS

None of the participants in our study engaged in media use related to a health orientation while cooking.

AFTER THE COOKING PROCESS

Epiphany

Through the Weight Watchers program, Epiphany was able to plug in the nutrition information into her account and Weight Watchers would tell her how many points she had used.

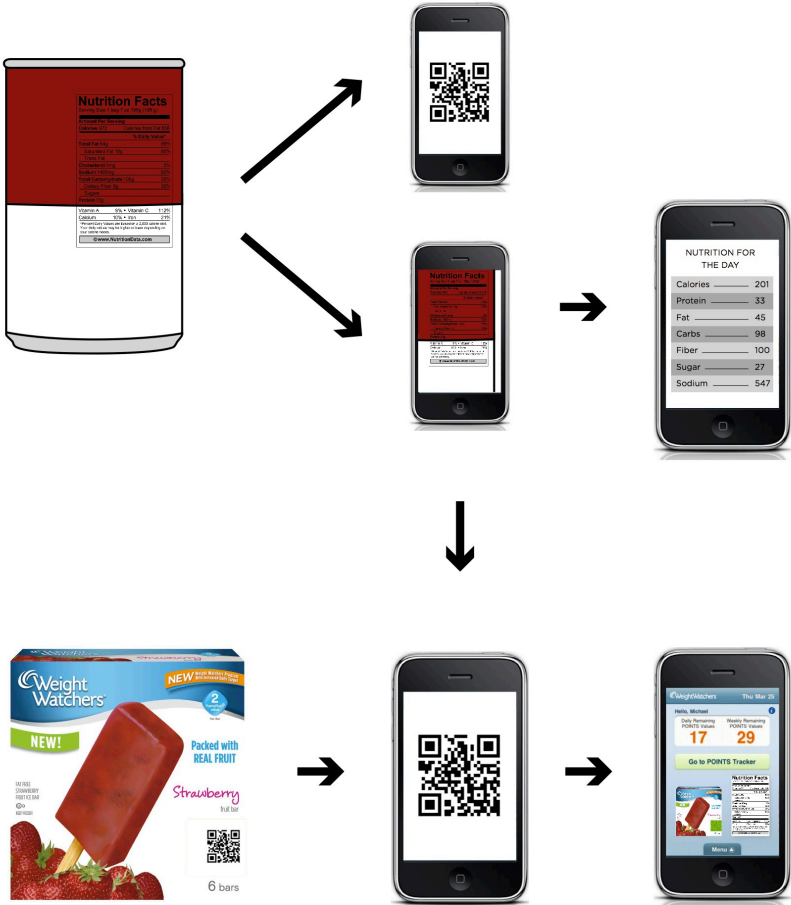
She wished that there was an online community around healthy food to share with. However, she did not want to communicate with strangers; she would rather share her food experiences with family and friends only.

There were no other participants who participated in after-cooking media activities related to health.

DESIGN IDEAS

Our design recommendations are primarily based on Epiphany’s use of the Weight Watchers website and the ways in which it did not meet her needs.

Figure 14. Phone App to Input Nutrition Information



- **Phone App to Input Nutrition Information (Figure 14)**
 - Epiphany takes pictures of nutrition labels and inputs the information to Weight Watchers whenever she gets home, in order to obtain the points. There is an opportunity for a phone app that would directly translate the information from the image to the site.
 - The app could photograph the nutrition label to decode the information, or more simply start to integrate the use of barcodes in the food industry. An example is shown in Figure 14.
 - The integration of QR codes could work with a company that produces foods, such as Weight Watchers. This way the QR code would work directly with the company's apps and point system/nutrition tracker.

- **Flexibility of Website to Enable User Customization**
 - Start Day of the Week – Epiphany started her day on Mondays instead of Sundays and would have liked for her schedule to be more in sync.
 - Control Over Sharing – Epiphany felt that the blogging and community features seemed to be sharing too much. Customization would allow for users to choose what they would like to be shared to the public or kept private, and who the information would be shared with.
 - Calculator for Calories and Other Nutritional Information – Epiphany stated that she wished Weight Watchers would allow for a place that calculated her calories and not just points.
 - Exercise Calculator – Because Epiphany and Rachael work out to stay healthy, exercise information would be relevant to calculate in with the food they had eaten for the day. Customization would allow for the user to view the exercise information either separately or integrated with food consumption for a combined point or calorie number.

- **Healthy Recipes** – Annie put a large emphasis on eating healthy and often used Yahoo Shine, a free search engine that offered healthy recipes. A Weight Watchers-type site could include a similar resource for finding healthy recipes.

- **Healthy Substitutes** – Annie spoke frequently about how she looked up recipes simply for ‘tips and tricks’ or suggestions. Recipes on the Healthy Recipes part of the site could suggest a healthy ingredient or alternative that the user has not tried before.
- **Accessibility and User-Friendliness** – Epiphany mentioned that the range of content was overwhelming on Weight Watchers and felt that at times the progress tracking was difficult to use.
- **Accessibility of Reviews and Star-Ratings** – Epiphany liked the ability to ‘like’ and ‘check in’ on Facebook. Reviews and star-ratings would allow for the user to share thoughts and preferences with the public or just their friends.
- **Expiration Tracker** – healthy foods such as fruits or vegetables lack the preservatives that others have, limiting their ability to last. An expiration tracker would allow for the user to see or even be notified about an apple’s upcoming expiration or how long a person may have before their bananas turn brown. This could be linked to electronic grocery records or integrated systems that communicate with the refrigerator, as described in chapter 5.

8. DEVICES IN THE KITCHEN

Widyarso Roswinanto and Mike Burns

RESEARCH FINDINGS

The most common media devices used in cooking related activities were the laptop computer, the desktop PC, the tablet, television and smart phone. There were a few important issues the research discovered in relation to the essence, utilization and treatment of media devices in the kitchen. The findings are elaborated in the patterns below and are supported with specific instances from different participants.

1. PARTICIPANTS TEND TO USE ONE DEVICE OVER THE OTHERS FOR EACH ASPECT OF THEIR COOKING ACTIVITIES.

Angela and Epiphany preferred to use their laptops to search for recipes and other kitchen experiences and used their mobile phone (iPhone for Angela and BlackBerry for Epiphany) to take pictures of nutritional information on food labels. Jane Doe also used her laptop for almost all information involved in the act of searching and sharing of activities in the food making process. She only used her BlackBerry to note down her shopping list. Michael mostly used his laptop to search and share cooking related information and used his iPhone as a cooking timer and music player. He didn't use his phone for any real cooking activities. Rachael, as well as George and Annie used their laptop computer and iPad more frequently to browse for information and ideas over the Internet and did not even use their iPhone for any cooking related activities.

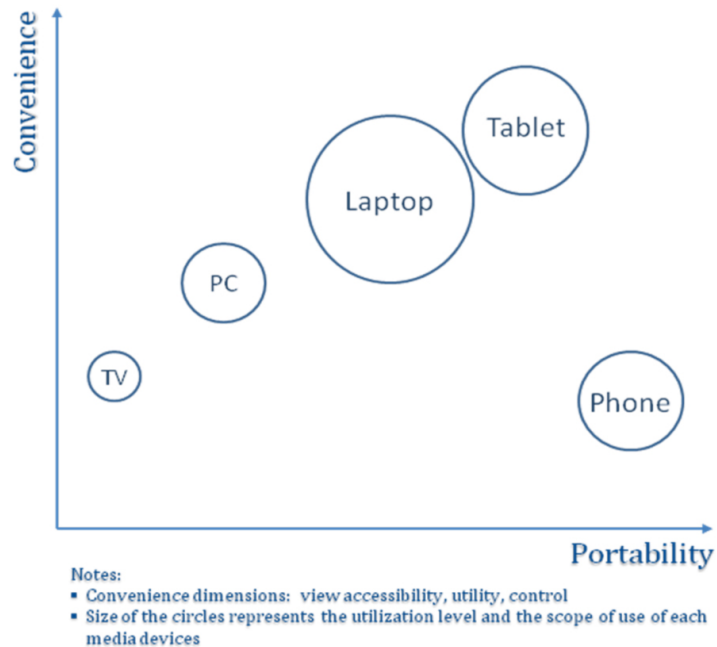
2. CONVENIENCE AND PORTABILITY FORM TWO CONTINUUMS THAT TOGETHER SHAPE WHICH MEDIA DEVICES ARE PREFERRED FOR USE. EACH MEDIA DEVICE HAS A UNIQUE POSITION IN THE MATRIX OF BOTH CONTINUUMS.

The most preferred media device for the use of cooking-related information searching and sharing is either computer or laptop. The convenience and feature availability (utility) are often the reason for such use. “It is more accessible” (convenience/utility) explained Angela when describing why she preferred to use laptop for information purposes. She used her iPhone for storing her grocery list because she brings a portable device with her to the store (mobility/portability). Epiphany used the term “form factor” to describe the physical convenience of using laptop, and mobility is the reason why she used her BlackBerry to take pictures of the food labels. It is much easier to take pictures using a mobile device than with a computer camera. George and Annie preferred using their computer in the kitchen because its convenience and ease of searching for and storing cooking information and recipes that they discover online. Jane Doe realized the rich features of her computer/laptop for browsing and looking for information about cooking. She shared information on Facebook, emailed fellow foodies, and viewed video clips on YouTube. She used her BlackBerry to keep the shopping notes because she doesn’t want to carry the open the laptop into the stores she visits. Michael reiterated that he didn’t like the smaller screen of his mobile device and preferred the functionality of the laptop computer’s keyboard.

From analysis of the data, it can be inferred that the continuum of convenience has at least three dimensions: (1) view accessibility, such as screen size and angle of view, (2) utility of the device which is mostly dependent on the device’s scope of features, and (3) the level of control of gaining or sharing information. Portability, though a single dimension, plays an important role that determines whether a media device will be carried beyond the kitchen or the house. This dimension in fact leads the extensive use of cell phone beyond the house for cooking-related activities, which doesn’t happen to almost any other media.

The unique positions of the common devices used in the cooking-related activities can be seen in Figure 15.

Figure 15. Hypothetical Positions in Convenience-Portability Continuums



3. THE LAPTOP COMPUTER WAS THE PRIMARY MEDIA DEVICE THAT WAS USED IN THE KITCHEN.

Rachael reported that she liked the laptop as her main form of media because it is easy to access, had a good keyboard for kitchen use and has a screen large enough to see while she is moving around the kitchen. Similarly, Michael also reported that screen size is one of the biggest reasons for choosing to use his laptop as his primary device. Epiphany also used her laptop as a primary device because of her use of the Weight Watchers website that she used to log the food that she ate. One of the repeated ideas throughout the data is that participants liked the use of the laptop because of its functionality and its ease of viewing while working in the kitchen. Other users used a combination of laptop computers and tablet devices like the iPad. George and Annie were the dissenters on laptop use. Instead they used the iPad in the kitchen. Looking closer however, George and Annie used their device in the same way that the other participants used their laptops; they were just the only ones who actually owned an iPad. In fact, Rachael mentioned that if she owned an iPad, that she would definitely use one in the kitchen. It seems that the participants in this study like a large screen and the idea that a device can be portable enough to

move around, but large enough to be able to use and see while moving around various locations in the kitchen.

4. THE CELL PHONE WAS NOT A PREFERRED DEVICE FOR KITCHEN USE.

All of the participants mentioned the small screen size as a barrier to use for cooking assistance. In addition, Rachael mentioned that she doesn't know how to use a cell phone as well as a laptop and she feared dropping her phone into the sink, or pot of water and ruin it. Michael talked about the lack of apps and how they didn't allow him to save things that he liked for future use. Epiphany talked about how there were not as many apps available for her BlackBerry phone. Annie also talked about a bad experience from using an app and both George and Annie complained about the small screen size. In looking at these complaints, perhaps better development of cooking apps could be considered as well as looking at other ways to display information on a mobile device.

5. GENERALLY, TV IS THE LEAST FUNCTIONAL DEVICE FOR COOKING-RELATED PURPOSES AND IS USED MORE FOR ENTERTAINMENT OR EXPERIENCE-RELATED PURPOSES.

Angela almost never watched cooking-related TV shows and instead viewed specific TV series to accompany her cooking experience in the kitchen. Similarly, Epiphany preferred watching dramas and judge shows to cooking shows. Jane Doe watched the Food Network programming on her television and then accessed some of the information from her computer that she saw on the TV shows. She also used her computer to look up videos in YouTube instead of using her TV for instructional purposes. Michael also used the TV to discover new ideas, ingredients and techniques, but he also got similar or better ideas by using his laptop to search Food Network websites and other informational cooking sites. Perry and Jordan relied mostly on their iPad and there is no evidence that TV played any role in their cooking experience. Rachael reported watching cooking shows on TV, but currently the TV is not even located near to the kitchen. She watched shows on her TV upstairs and later looked up the recipe on the Internet, but she did not use TV as a media device in the kitchen. Only George reported watching grilling shows on Food Network while cooking or before grilling on the weekends in order to get some ideas. His wife Annie didn't even like to watch a lot of cooking shows because she found the recipes too convoluted, complicated, and contained too many specialty ingredients instead of everyday items. What is missing from a TV show that a laptop can

provide? Laptops apparently allowed the user to browse a website or discover videos that allow people to gain control of the information that they chose to access at a specific time that is convenient for them, not according the scheduling of the television network.

6. THERE IS NO INTER-DEVICE COMMUNICATION USED BY PARTICIPANTS. IN OTHER WORD, THE USE OF EACH MEDIA DEVICE IS INDEPENDENT OF EACH OTHER DEVICE.

Only Angela discussed the fact that there was no connection between her laptop and iPhone, especially when it came to cooking-related information and activities. However, there was no evidence found in the data that suggested that the other participants in this study could ever use any inter-device communication. The pattern shows that the devices are used by participants independent to each other. Another example is Jane Doe who manually typed the grocery list on her BlackBerry instead of making any data transfer from her laptop. Information that is processed in a certain media device is not transferrable to other devices. Such a pattern may not be consciously stated by the participants, but it can be clearly inferred from our observation. This pattern actually may relate to the first pattern/finding as elaborated above in which it may become one of the reasons why particular devices are preferred for particular purposes.

7. PARTICIPANTS TEND TO HAVE A SPECIFIC LOCATION AND SAFETY TREATMENT FOR THEIR MEDIA DEVICES WHEN OPERATING IN THE KITCHEN.

Participants chose specific locations to place their media devices when operating them in their kitchens. The reasons for this placement range from care or the device (cleanliness of the location), accessibility of the screen view and keyboard use and safety of the device in relation to where the cooking experience is taking place. Angela always placed her laptop on either the office desk located in the kitchen or on the safe kitchen counter by the stove. She worried the laptop and iPhone will get dirty which is why she hardly moved the devices from the desk or counter. While cooking, she always washed her hands before touching the media devices.

Epiphany's laptop stayed at its place on the kitchen counter almost permanently. Jane Doe took care of her laptop by putting it on a special stand for viewing purpose and always used extra care since she has once dropped her BlackBerry into a glass of

tea. Michael placed his laptop on the island almost as stationary as the wall-mounted TV in the dining room, but sometimes turned his computer so it could face the stove while he is cooked.

8. THERE IS LIMITED PHYSICAL MOVEMENT OR MIGRATION OF MEDIA DEVICES, ESPECIALLY FOR LAPTOP AND TABLET PCs.

Angela clearly had her laptop in the kitchen all the time as she put it on the office desk within the kitchen itself. Epiphany's laptop stayed at its place on the kitchen counter almost permanently. Similarly, Jane Doe, Michael and Rachael rarely moved their laptops during the cooking experience. The larger media devices (laptops) are sometimes moved into specific locations within the kitchen and not outside the kitchen. In the case of small devices like iPhone or BlackBerry, most of the participants carried them along when leaving the kitchen and kept them in their pockets or on a safe spot on the counter while cooking is took place.

9. PARTICIPANTS TEND TO EXPECT MORE ADVANCED FEATURES ON THEIR DEVICES FOR BETTER USE AND UTILIZATION IN COOKING ACTIVITIES.

Epiphany wished "things like this (cooking apps or programs) could be more BlackBerry friendly, something that was quick and easy to use would be best." Perry and Jordan wished they could print from their iPad, primarily to use it as grocery list. Michael talked about the quality of telephone service providers as being a barrier to effective app usage, and he did not like one app that he tried because he could not save the recipe to his phone for use off-line.

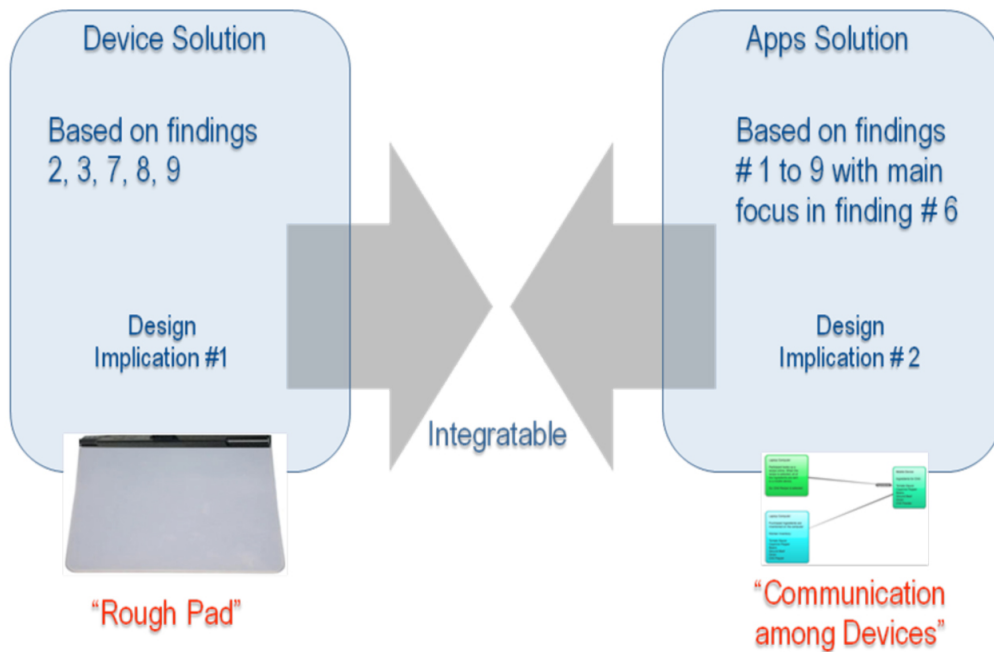
To summarize the findings, there are nine patterns that will be selectively incorporated into the required design solutions: (1) Propensity to use particular device for specific purposes, (2) Convenience-portability mapping, (3) Laptops are the most used device, (4) Cellphones are least utilized in the kitchen, (5) TVs are the least information-relevant, (6) There is no inter-device communication, (7) Specific location and care for the media devices, (8) Limited movement of media devices, and (9) Expectations of more kitchen-friendly attributes on the media devices.

DESIGN IDEAS

The objective is to offer design ideas that are simple, feasible, and effective, within the scope of media device and apps invention. We offer two main design solutions based on our research. First, by incorporating patterns 1 through 9, with a strong emphasis on pattern 6, we look to develop an application that allows inter-device communication. The second solution offers a way to help kitchen users safely interact with kitchen media during the actual cooking process. This second solution focuses on patterns 1, 2, 3, 7, 8 and 9. Both design implications are integratable as complementary solutions, though each can be applied independently with the design framework as seen in Figure 2.

Although the design ideas are specifically developed for the purpose of enhancing the cooking experience, the utilization of such designs is not limited to kitchen issues, and can be used for other purposes.

Figure 16. Design Ideas: Device Solution and Apps Solution



THE ROUGH PAD

This pad which will connect wirelessly to all available devices (laptop, tablet, television or smart phone) will ensure safe and full control of media while they are being used in the kitchen. Made of tough and flexible material, the rough pad will be able to control any device without the actual device being touched or being placed in a dangerous area. This in turn would allow the device that the Rough Pad was controlling to be stored in a safe but highly visible location that would still allow the user to be able to see its screen without it ever being in danger of being damaged in the kitchen. Meanwhile, because the rough pad is virtually indestructible in the kitchen environment, it can be placed almost anywhere and be used by a cook no matter how dirty or close to the cooking experience they are. If the Rough Pad gets dirty, the user simply has to clean off the pad with soap and water. It should be designed as a heat and scratch resistant device. The final draft of Rough Pad design can be seen in Figure 17.

Figure 17. The Rough Pad - Device Control



The Rough Pad can also be used to take cooking measurements and send that information directly to another media device. For example, if a recipe calls for 6 ounces of an ingredient, the user can place that ingredient on the Rough Pad and it will register that weight on the kitchen media device. The corresponding apps in existing devices (laptop, tablet, etc.) may also further calculate the calories and/or fat level of the measured ingredients.

The Rough Pad will maintain the mobility that many of the users in our research tend to like in regards to their laptop and tablet use. The Rough Pad can be wrapped around the arm or the hand when transporting the device or moving from location to location.

Ultimately, the Rough Pad allows the user to use their media device safely in the kitchen without the fear of damaging their expensive device in the kitchen environment. The tough, flexible and portable device will allow for a more comfortable and stress-free cooking experience.

COMMUNICATION AMONG DEVICES

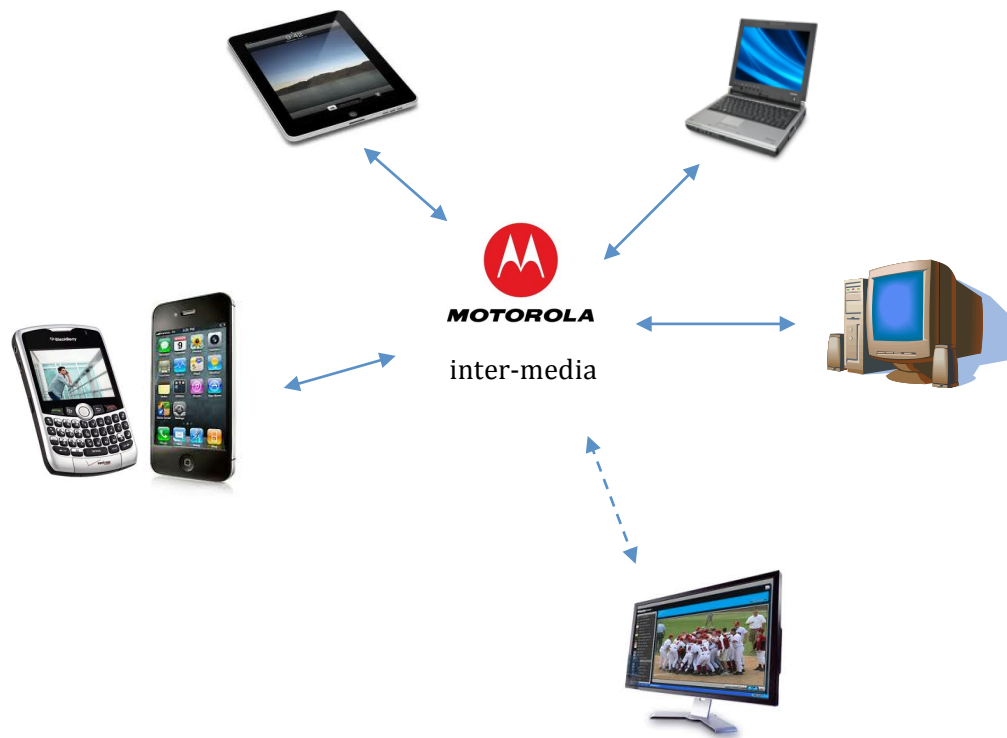
The research indicated that while many users own more than one type of media device in their home (smart phones, laptops, iPads, and desktop computers), the preference for most of the participants was to either use a laptop or iPad as the main form of media in the kitchen during the cooking experience. One way to better integrate different types of devices is to develop applications that will allow communication among the different types of devices used for cooking-related purposes. The apps may need to contain an interfacing software that works for the least sophisticated media (for example BlackBerry in this case) to ensure effective transfer of information among devices.

A summary of the communication among devices can be seen in Figure 18.

For example, a cook can use her desktop computer for looking up recipes and ingredients and those ingredients can immediately be sent to her smart phone where an easy-to-follow shopping list is developed and stored for easy access at the supermarket. In turn, once those ingredients are purchased, an inventory list can be sent back to the computer or iPad that will allow the cook to keep better track of what she has in the pantry and the refrigerator. That way, the next time an

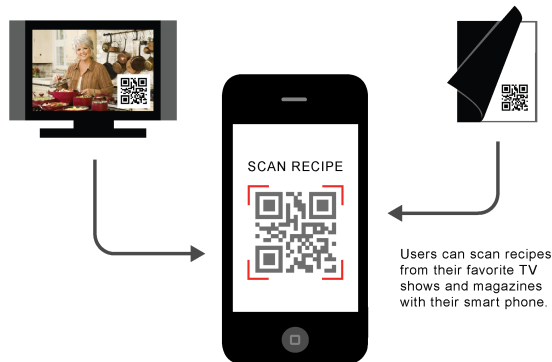
ingredient is listed in a recipe and it is already in the kitchen, it won't be added to the grocery list. There appears to be an unmet need in the data collected from our participants in this area. Perhaps if the devices could work together, it would be more likely that they would use more than just a computer or an iPad during the cooking experience.

Figure 18. Communication among Devices



Television may have the least potential to be integrated into such a media interface application. However, one idea of an app that would work with TV is a recipe scanner (see Figure 19). The magazine and television smart phone scanner allows any foodie to have a recipe at their fingertips when they are flipping through the pages of their favorite magazine or watching cooking programs. This type of design implication would include instant access and storage of the recipe on their phone. They would also have access to it through email or a personal account through the applications website. This design idea could also be incorporated as a feature in a broader application with many different features.

Figure 19. iPhone Recipe Scanner



Apart from the two main types of design ideas described above, we offer some secondary design ideas as supplements that can either function independently or be integrated to the main design ideas.

SMALL SCREEN SOLUTION

Since one of the common complaints about mobile devices during the course of our research was the small screen size, one suggestion is to develop a device that can be compact enough to take on the road with the user but can then fold out into a larger screen when using in the kitchen for cooking purposes. This “fold-able” device would allow for the large screen that is common on most laptops and tablets which would make it ideal for use in the kitchen. However, the same device can be “folded” up and taken to the grocery store or any other location where a portable device might come in handy.

DEVICE PROTECTION

Another fear by many of the participants was the potential loss or damage to a device while operating it in a dangerous location... the kitchen. Several of the participants mentioned the fear of damaging their devices while operating them around liquids, open flames and other potentially dangerous ingredients. Therefore, another design suggestion is a device that is “kitchen proof”. Developing a tablet or laptop that would be resistant to the perils of the kitchen would be attractive to many users who participated in our research. Below are a few ideas that we have that might help “kitchen proof” many of the devices that are currently being used during the kitchen experience.

NO STICKY FINGERS

Much in the same line, because sometimes a cook in the kitchen has dirty or wet hands, operating a media device can sometimes be tricky. Developing better voice commands in conjunction with cooking devices would allow users to use their media without the fear of damaging or getting them dirty while in the middle of the cooking process. Users could instead ask the device a question about a cooking technique and a YouTube video could come up that demonstrates that technique, or a cook could ask for a measurement calculation and the device would show them without ever being touched by the user. The cook could even have basic conversations with the device when following a specific recipe in the kitchen.