



PROJECT 2

Embodied Shopping

PREPARED FOR

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1. Project Introduction

Grocery shopping has not kept up with the times, especially in-person shopping. Since the pandemic, people have gotten used to ordering food online, and need more reason to shop in person. Our goal is to find a way to make in-person shopping for the average consumer a more convenient and enjoyable experience. We will examine inefficiencies and inconveniences in the current grocery store experience to see if there is an element we can improve.

2. Exploration

Initial Ideas

In our initial brainstorm, we considered several concepts aimed at improving the grocery shopping experience. One idea involves recipe cards strategically placed near the front entrance or alongside relevant ingredients to encourage people to try new recipes. We also explored a shopping simulator or entertainment system within the store environment, to either entertain or educate people. Additionally, we proposed a coupon minigame that could be incorporated into the shopping experience, possibly combined with nutrition education exercises to promote healthier choices. Some other problems we considered addressing include the uncertainty of item availability and the difficulty in locating specific items within the store. Much of our exploration started from the position of secondary research, just to get an understanding of the grocery store ecosystem and the problems that customers experience there. Thus, the number of ideas we brainstormed was rather limited, but we arrived at those ideas from an informed position.

We ended up selecting the concept of recipe cards to encourage people to try different types of foods.

Problem Statement

Families, constrained by time, do not often try new recipes when visiting grocery stores.

Design Question

How can we make it convenient and desirable for customers, especially families, to try new recipes?

Sociotechnical System Analysis

We conducted a Sociotechnical System Analysis to grant ourselves a better understanding of the grocery store ecosystem, so we might identify elements other than the customer that could be catered to, to provide a more embodied experience. We ended up still choosing a customer-oriented concept, but this exploration benefited us regardless.

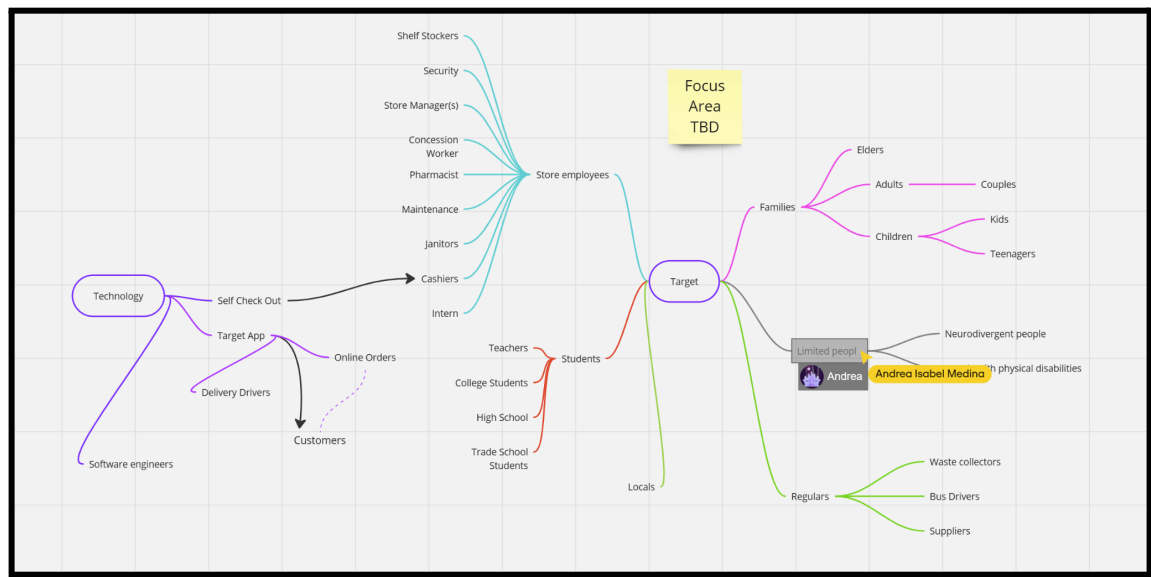


Figure 1: Mapping out the relationships between people and technology at Target.

Design Space

1. Problem Space: What is the problem in my own words?	Shoppers do not feel encouraged to try new recipes.
2. User focused: Who is this problem affecting?	This problem affects all shoppers, but especially families that need to also manage kids while shopping.
3. Appreciative System: How would I solve this problem in a way that appeals to me?	At the entrance of the store, recipe cards are available.
4. Constructivism: What kind of experience can I create that includes elements of what I know above	Create an experience that encourages shoppers to try new recipes, I'd design an interactive in-store journey that begins with recipe cards at the entrance. This journey would lead them through the store, guiding them to the ingredients they need, which could be augmented with digital screens displaying recipe preparation steps, and interactive features for kids to keep them engaged and learning about food.
5. Cultural Knowledge: Will this solution work in this context?	Understanding that families often shop with children, the solution should incorporate family-friendly elements that make the shopping experience easier for parents. The cultural shift towards healthier eating and family activities could be leveraged to ensure this solution fits within the current societal context.
6. Design Statement: Combine the content of 1 & 2	Families, constrained by time and managing kids, cannot easily try new recipes.
7. Design Question: Combine 4 & 5 into a question	How can we design a grocery shopping experience that not only inspires families to try new recipes but also caters to the challenge of shopping with children, transforming it into an engaging, educational family activity?

Figure 2: An exploration of the design space we might occupy.

How and Why the Activity Was Conducted: The design activity was structured around seven key areas, each prompting introspection and ideation from different angles.

1. **Problem Space:** The activity begins by defining the core problem—in this case, a lack of encouragement for shoppers to try new recipes. This understanding is crucial as it establishes the foundation for all subsequent design decisions.
2. **User Focused:** Next, it identifies the primary users affected by this problem. By recognizing that families, especially those with children, are a significant demographic, the solution can be tailored to their specific needs and challenges.
3. **Appreciative System:** This step involves personalizing the problem by asking how one would prefer to have it solved, promoting empathy and personal engagement with the design process.
4. **Constructivism:** Leveraging one's knowledge to create an experience implies integrating personal and professional insights into the design. This fosters innovation grounded in practicality.
5. **Cultural Knowledge:** Acknowledging the cultural context ensures that the solution is relevant and viable within the societal norms and behaviors of the target user group.

What Was Hoped to Achieve: Through this reflective and structured approach, the aim was to achieve an innovative solution that aligns with the users' lifestyles and preferences. The goal was to create a more engaging and family-friendly grocery shopping experience that encourages recipe exploration and healthy eating habits.

Design Statement and Question: The design statement combines the problem space with the user focus, leading to a concise summary of the challenge: "Families, constrained by time and managing kids, cannot easily try new recipes." This crystallizes the aim of the design effort into a clear objective.

The design question synthesizes the understanding of the problem with cultural knowledge, asking how a grocery shopping experience can inspire families to try new recipes while also catering to the challenge of shopping with children. This question is pivotal as it guides the ideation process towards solutions that are both practical and aspirational.

GOMS Analysis



Figure 3: An exploration of potential goals and how they could be accomplished.

Why We Conducted This GOMS Analysis:

To enhance the customer experience in our grocery store, we needed to deeply understand the sequence of actions (operators) that customers perform to achieve specific goals. Our GOMS analysis allowed us to streamline operations, clarify our marketing methods, and make informed decisions about which strategies to implement. By dissecting goals into tangible, achievable steps, we were able to identify inefficiencies and areas for improvement.

Goals and How to Achieve Them:

1. **Goal 1: Increase new recipe usage** - Achieved through cataloging recipes and distributing recipe cards. This encourages customers to try new products and can potentially lead to an increase in sales.
2. **Goal 2: Attracting customers** - Implemented by initiating a referral program, tracking visits with membership cards, and distributing coupons. These methods incentivize new and recurring visits, expanding the customer base.
3. **Goal 3: Encouraging larger purchases** - By creating in-store events and providing samples, we encourage customers to spend more per visit.
4. **Goal 4: Enhance brand engagement** - Through customer surveys and analysis of operations, we can tailor the shopping experience to the customers' preferences, building a loyal customer base.
5. **Goal 5: Appeal to shoppers on a budget** - This is addressed by offering promotions and discounts targeted at cost-conscious customers, ensuring they receive value for money.

Influence on Final Design Solution: The findings from our GOMS analysis directly influenced the decision to pursue the concept of recipe cards. We identified convenience as a significant barrier to customers trying new recipes. To counter this, we designed recipe cards that provide customers with a simple and accessible way to experiment with new foods. The cards serve as a method to achieve several of our goals, such as increasing new recipe usage (Goal 1) and attracting customers (Goal 2), by making the shopping experience more engaging and less intimidating for those on a budget (Goal 5).

Final Design Solution: Our final design solution, the recipe cards, is a product of extensive research and analysis. It is grounded in the understanding that a seamless customer experience is paramount. These cards, strategically placed within the store, serve as both a shopping aid and an inspiration for customers to explore new flavors and ingredients. The positive response to the mockups has validated our approach, and we anticipate that this initiative will strengthen our relationship with our customers, ultimately driving sales and fostering a community around our brand.

3. Secondary Research

Research Summary

Through our research, we delved into the intricacies of the grocery shopping experience, including shopping behaviors, store layouts, coupon effectiveness, and recipe utilization. Drawing inspiration from various studies, our aim was to enhance the convenience and appeal of grocery shopping, particularly for families interested in exploring new recipes. For instance, Carroll's (2018) study highlighted the significance of integrating recipes and nutrition tips to promote healthier food choices, which influenced our decision to offer a variety of recipes tailored to different dietary needs. Additionally, Ferreira's (2019) research underscored the importance of streamlining the shopping process, inspiring us to include cooking instructions via QR codes on our recipe cards to simplify decision-making for customers. Furthermore, Jain's (2018) SmartGrocer system demonstrated the benefits of personalized recommendations through coupons, which we incorporated into our product to improve efficiency and reduce costs in grocery shopping. Moreover, Syeda's (2019) exploration of promotional strategies through recipe cards emphasized the potential of such initiatives in encouraging dietary habits and influencing consumer purchases. Lastly, Ozgormus and Smith's (2020) work on grocery store layout optimization provided insights that informed our decision to place our product towards the front of the store for maximum visibility and efficiency. By integrating these findings, our solution offers recipe cards equipped with cooking instructions, coupons, and ingredient lists, empowering shoppers to make easily informed decisions aligned with their nutritional and budgetary needs.

4. Data Collection

Our team conducted contextual inquiries to better understand the grocery shopping habits of college students, focusing on their environment and mindset to gauge the potential efficacy of our proposed solution. Visits to Kroger, Walmart, and Target provided thorough insights as we observed behaviors and conducted several interviews to delve into their motivations and receptiveness to our concept. Analysis of these findings highlighted common trends and challenges, such as constant budgetary constraints, informing the refinement of our product concept. This immersion into the college shopping experience validated the relevance of recipe cards as a potential solution.

Contextual Inquiry Summary

1. Most customers opted for the handheld basket, which was one of the only options.

2. Customers who did opt for shopping carts, often had an overflowing cart or typically had a family with them.
3. Many customers checked their phones while they were shopping, unclear if they were using the notes app or getting distracted by messages.
4. At least $\frac{1}{3}$ of customers were constantly holding a phone in their hand when looking at different food brands, prices, etc.
5. In the frozen food section, customers would often stand in front of one or two panels and look for a while before making their selection.
6. Customers seemed more certain of their selections beforehand in the snack aisles or just had an easier time finding them.
7. Student customers tended to purchase at least several frozen meals, on average
8. Customers tended to ignore the barcode price checkers even when unsure of price of items in their carts.
9. Customers did not often seem to buy fruit when it comes to the fresh produce section. Some customers bought packaged meat, and some bought salad or lunch kits, but few bought fresh food.
10. Some customers purchased a large number of snack foods, especially chips, cookies, and flavored crackers like goldfish.
11. Customers tended to go straight to the back of the store where all the grocery items were being held.
12. Many customers appeared to be in a rush as they shopped.

5. Data Analysis

Interview Theme(s)

Our interviews revealed several key themes regarding grocery store shopping habits. Most participants prioritized convenience and cost in their purchasing decisions. Despite a willingness to try new recipes, many often refrain from doing so due to perceived barriers such as the complexity of recipes and the price of ingredients.

Observation Theme(s)

To observe the natural shopping behaviors of families within a grocery store environment to understand how they make decisions about food purchases without the influence of recipe cards or guided shopping aids.

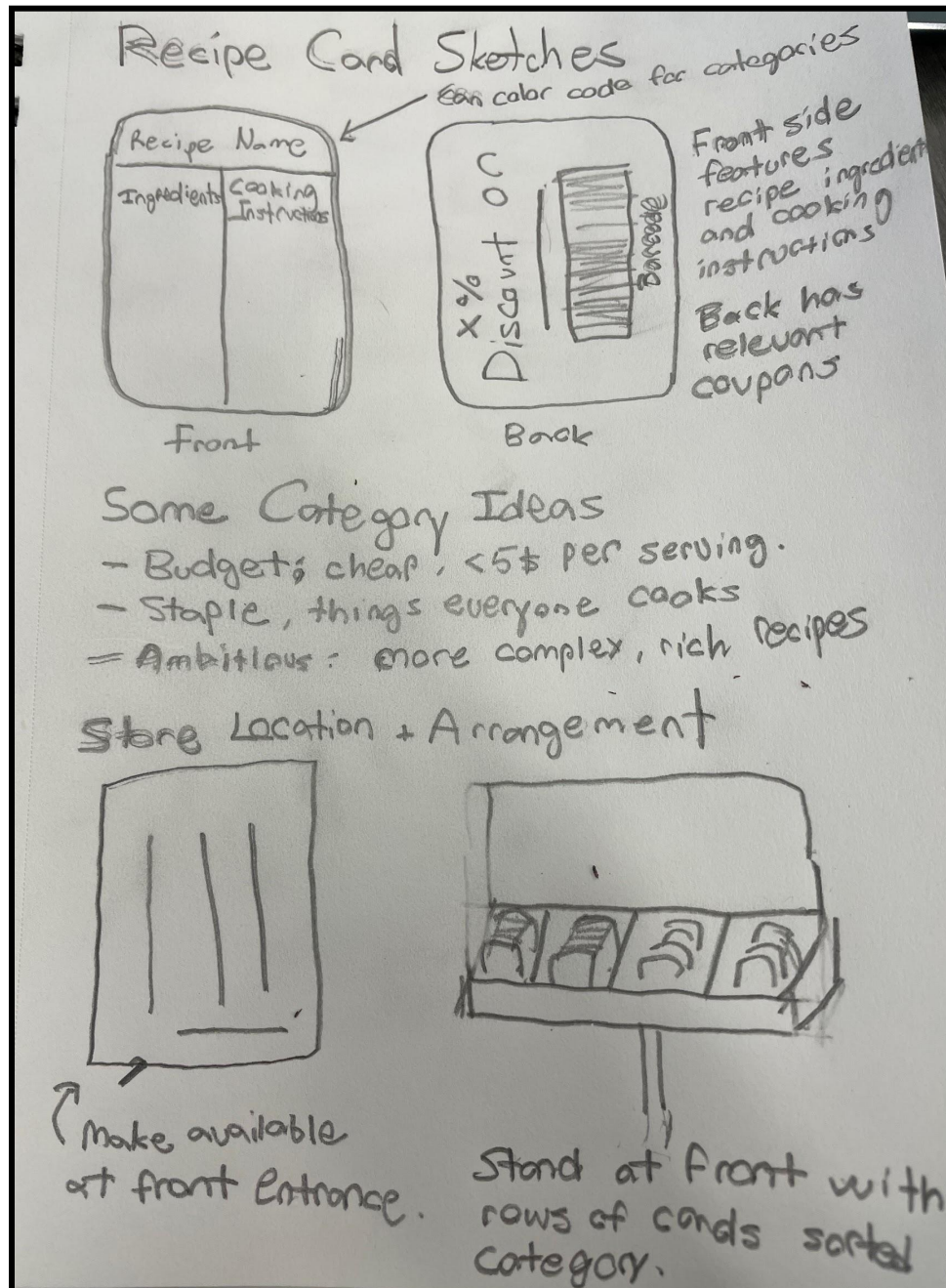
Data Collection Methods:

- Unobtrusive observation: Researchers unobtrusively observe and take detailed notes on shopper behaviors.

- Time tracking: Record the time spent in different sections and the overall time in the store.

6. Prototyping

Initial Sketch 1



Above Figure 4: Initial sketch of recipe cards, functionality.

Final Prototype Sketches 1 - 4

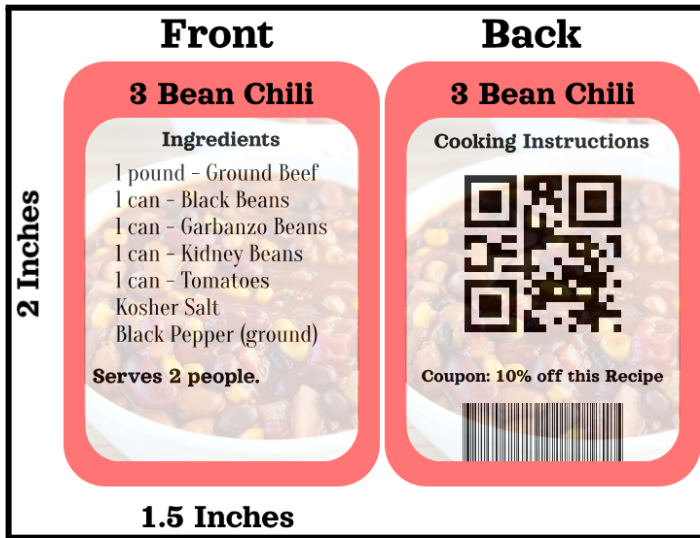


Figure 5 - Sketch of a Budget Recipe Card

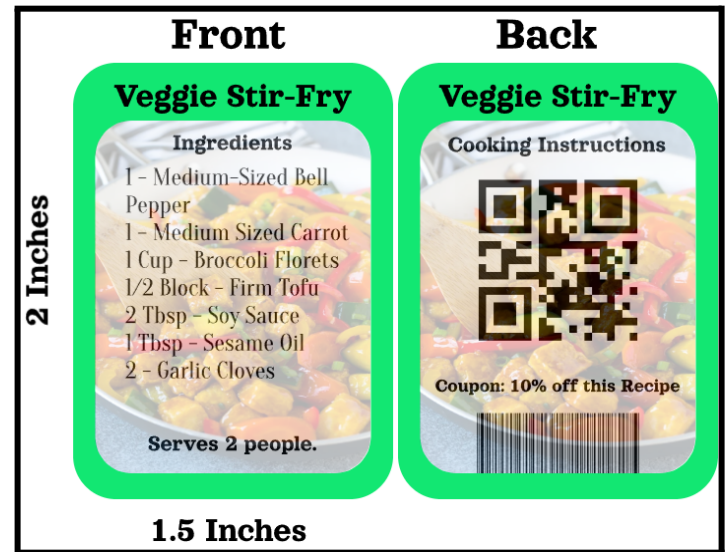


Figure 6 - Sketch of Vegetarian Recipe Card



Figure 7 - Sketch of a Gluten-Free Recipe Card

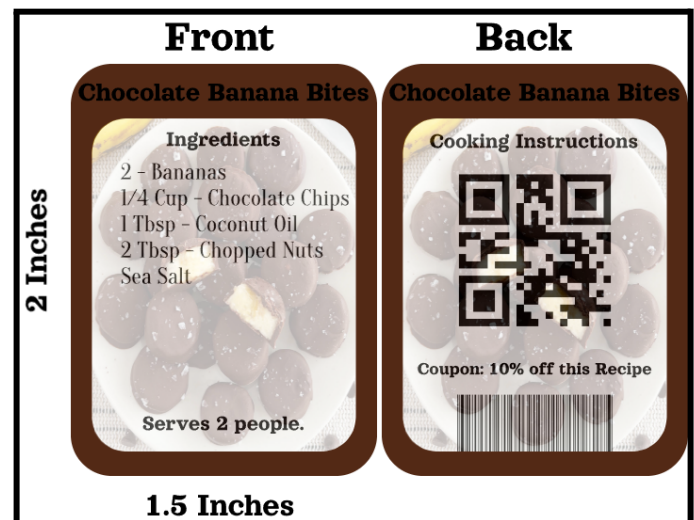


Figure 8 - Sketch of a Dessert Recipe Card

These are example recipe cards that customers would see as they walk through the front entrance. A basket full of these would be available. The border color of the card would indicate that the recipe is one of the following categories: red for budget/simple, green for vegetarian, blue for gluten-free, and brown for desserts. The QR code would link to a set of instructions about how to cook the recipe and a barcode at the bottom for a coupon of the ingredients when they buy them as a bundle using our recipe card.

Recipe Website Sketch 1

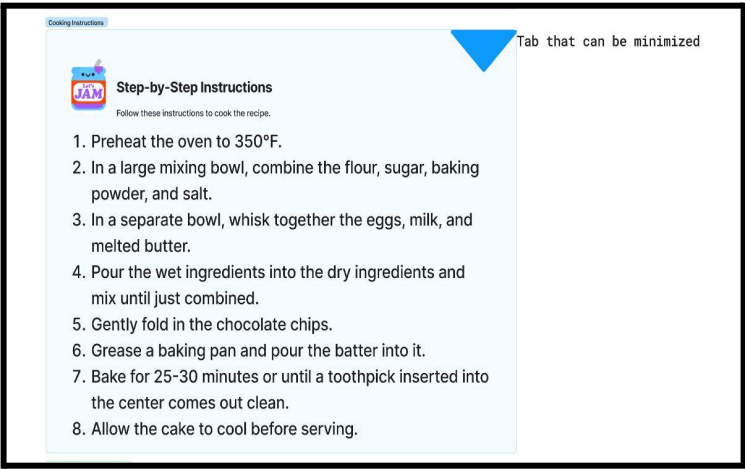


Figure 9 - Mockup of Recipe Website's Instructions

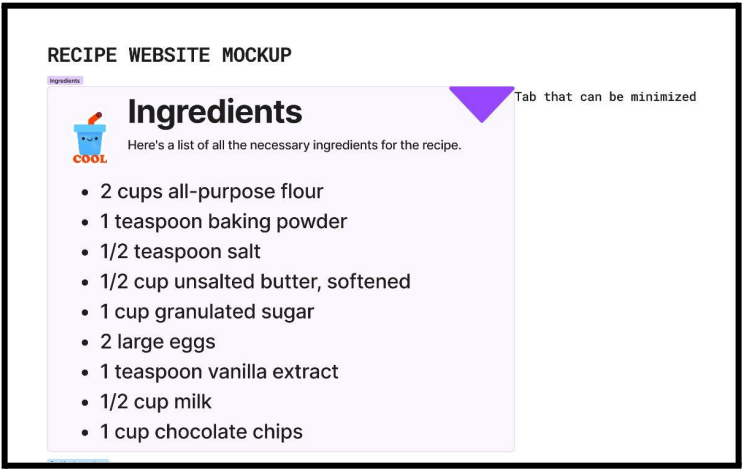


Figure 10 - Mockup of Recipe Website's Ingredients

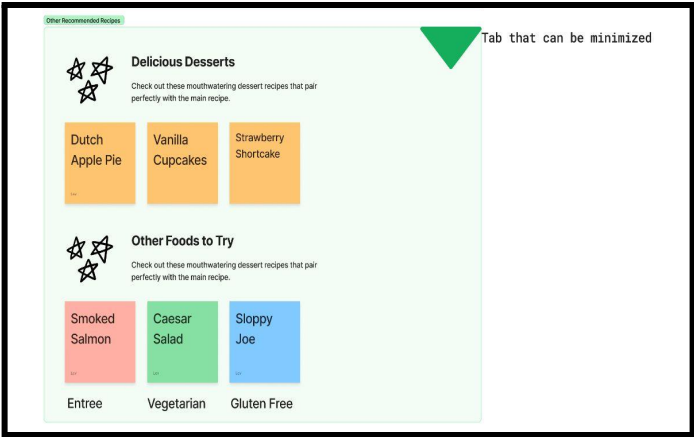


Figure 11 - Mockup of Recipe Website's Recommendations

Storyboard



Figure 12 - Storyboard going through the process of a customer using our product

7. Interview Transcript(s)

Interview 01

Interviewer: Samuel C.

Interviewee: Lynette M.

How often do you go grocery shopping? What store do you go to?

Once a week. Kroger. Used to do Walmart but Kroger is more convenient to do shopping all at one store.

How often do you engage in grocery shopping in-store versus online, and what are your main reasons for choosing one over the other?

Exclusively in store. I get to see the product myself

How often do you cook for yourself or your family?

6 days a week.

Can you tell me about a time when you wanted to try a new recipe but decided not to because it seemed too complicated or time-consuming?

Happens all the time. Typically won't try a new dish if the price for the ingredients are too expensive or if it has too many (10 ingredients) ingredients, or if it's too spicy, etc.

Have you ever used recipe cards or cooking guides provided by a grocery store? If so, did this influence your shopping experience or the items you purchased?

Yes I have. I liked the recipes I saw and immediately had to buy the ingredients. First time ever doing so was with chocolate chip cookies using crisco baking sticks.

Can you think of a situation where a grocery store helped you discover a new food or recipe, and how did that impact your shopping habits?

Kroger sends out holiday fliers/booklets with coupons and recipes. The coupons go with the recipes in the booklet so therefore I will then go to the store and use as many of the coupons to make those recipes during the holidays.

Do you prefer choosing healthier/organic products that are more expensive or more affordable products in your cooking?

More affordable.

How do you feel about incorporating technology into your shopping experience, such as digital recipe displays?

I would like to see it more.

If you had to choose 5 foods to have a lower price, which ones would you put on your shopping cart?

Chuck Roast

Deli Meat

Cheese

Frozen Entrees

Pre-Cut Fruit

8. Conclusions

Concluding Thoughts

Ultimately, this project represented a journey into understanding the operations of a grocery store, as well as the needs and limitations that customers experience. This exploration included sociotechnical analysis, secondary research, interviews, and contextual inquiries. We decided to address the specific problem of the barriers to trying new recipes, mainly convenience. Through our exploration, we came up with several potential solutions and landed on the idea of recipe cards. We made sketches and mockups of said product, and we are happy with the result.

Final Presentation

<https://youtu.be/Y4rSDYxNxZw?si=zJmTJsRWd3Zyfcju>

9. Contributions

Name	Contributions
Samuel Clouse	Exploration, Design Space, Secondary Research, Interviews, Observations
Lev Working	Initial sketch, design space, secondary research, prototype card, website mockup, presentation script, presentation audio
Jiaqi Chen	Interview questions, secondary research, presentation audio, presentation editing
Andrea Medina	Exploration, Maps, Interview questions, Presentation script, presentation audio
Zack Wang	Secondary research, voice lines

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Appendix A - Interview Protocol

Questions:

How often do you go grocery shopping? What store do you go to?

How often do you engage in grocery shopping in-store versus online, and what are your main reasons for choosing one over the other?

How often do you cook for yourself or your family?

Followup: If the interviewee doesn't cook often, what are the barriers preventing them from cooking more often?

Can you tell me about a time when you wanted to try a new recipe but decided not to because it seemed too complicated or time-consuming?

Have you ever used recipe cards or cooking guides provided by a grocery store? If so, did this influence your shopping experience or the items you purchased?

Can you think of a situation where a grocery store helped you discover a new food or recipe, and how did that impact your shopping habits?

Do you prefer choosing healthier/organic products that are more expensive or more affordable products in your cooking?

How do you feel about incorporating technology into your shopping experience, such as digital recipe displays?

If you had to choose 5 foods to have a lower price, which ones would you put on your shopping cart?

//additional question about culture:

Are there cultural or community aspects that you believe are missing from the current grocery shopping experience?

Appendix B - Script

[Video starts panning to the family in a busy grocery store]

Voiceover: "Ever feel overwhelmed by all the new products and foods available at the market but aren't sure of your budget or what to do? Meet the Smiths, a busy family of five who are always on the go. Trying the same meal over and over can get boring."

Dad: "I just don't know what to do with all of this! It's so overwhelming."

Voiceover: "Do you ever want to try new recipes, but as soon as you go to the grocery store, you buy the same foods and ingredients as last time?"

Child: "Papa, can we please eat something other than Shepherd's pie this week?"

Dad: "I've failed you son."

[Enter a friendly market vendor who approaches the family]

Voiceover: "Have you noticed your store's new recipe cards, available at the front entrance?"

Dad & Child: "Woah"

Voiceover: "These recipe cards are available to you at the front entrance. On each one of them, you'll find a list of ingredients, a QR code linking to the cooking instructions, and a coupon on all the items."

Dad: "The modern world is amazing! But how does it all work?"

Voiceover: "The cards are conveniently sorted into different categories. Red for simple, budget-friendly recipes. Green for vegetarian options. Blue for gluten-free. And, save some room for dessert with purple cards! All this is at your disposal to try different things. Roasted chicken is delicious once in a while, but why don't you prepare some smoked brisket or shrimp jambalaya? Your kids will love it!"

[Shows a recipe card with the ingredients needed for the shrimp jambalaya]

Voiceover: "As you can see, each recipe card limits ingredients to the essentials, while still maintaining a fantastic taste."

Dad: "Wow, I don't even need to buy that many ingredients and the recipe is so simple. This makes things so refreshing! I can't wait to cook these. No more eating the same thing for dinner."

Child: "We're free from the tyranny of shepherd's pie."

[Cut to the family returning home and cooking a delicious meal together]

Voiceover: "With the help of these recipe cards, the Smith family was able to easily navigate the market, try new products, and enjoy delicious meals together as a family."

Dad: "Thank you, mysterious disembodied voice! Now my son and I can enjoy new foods with ease."

Voiceover: "Don't let the overwhelming options at the market get you down. Take advantage of free recipe cards available at your local market and bring the joy back to cooking for your family. Happy shopping and happy cooking!"