

Citi Certifications



Completion Date 07-Feb-2023
Expiration Date N/A
Record ID 54281398

This is to certify that:

Jackson Greer

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

Human Research
(Curriculum Group)
Course Projects
(Course Learner Group)
1 - Basic Course
(Stage)

Under requirements set by:

University of Colorado at Boulder



Completion Date 22-Feb-2023
Expiration Date N/A
Record ID 54577041

This is to certify that:

Trevor Porter

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

Human Research
(Curriculum Group)
Course Projects
(Course Learner Group)
1 - Basic Course
(Stage)

Under requirements set by:

University of Colorado at Boulder



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Verify at www.citiprogram.org/verify/?w1ea33c0d-1981-4c78-a56c-5deba9530d5d-54577041



Completion Date 22-Feb-2023
Expiration Date N/A
Record ID 54578241

This is to certify that:

Cayla Kennedy

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

Human Research
(Curriculum Group)
Course Projects
(Course Learner Group)
1 - Basic Course
(Stage)

Under requirements set by:

University of Colorado at Boulder

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Project Milestone 2: Formative Research

Jackson Greer

[Trevor Porter](#)

[Cayla Kennedy](#)

Research Plan Summary

The most important group of stakeholders we need to discuss our product with are those with a food intolerance or allergy and picky eaters. These are the product's primary users and will provide the most vital feedback to the project. As a secondary stakeholder, we could discuss the idea with restaurant employees to see how they would feel about the product and what they feel is important to the design. Lastly, we could discuss the idea with travel agents to understand their thoughts on the idea and what they find important.

There are a couple of questions that we find important to understand about our user population:

1. How does the restaurant hunting process work with your food intolerance?
2. Do you have allergies? If yes, how do you notify restaurants to prevent cross-contamination?
3. What information do you wish restaurants would give regarding food items?
4. Are there lots of restaurants that cater to your needs in the local area? Have you explored the restaurants around you to see the options that meet your food needs?
5. Do you often challenge yourself with new foods? If so, how often?
6. Do you feel safe eating the foods that restaurants serve you?

We plan to recruit participants via both online and in-person methods. We will create QR code flyers detailing the study and providing contact information. We will also post these flyers on online sites including social media and school-operated messaging platforms. We intend to post on multiple forms of social media and in person so we can gain users of various age ranges. Jackson will handle the printing and hanging of flyers in the Bear Creek apartments as well as handling the contact emails. Cayla will handle posting the survey and flyers in the ATLAS Building. Trevor will hang flyers in his apartment complex. We will all post the survey online on various social media platforms. We intend for users to email in using the link and then direct them to either the survey, interview, or diary study based on the amount of time they have to help with the study. If these methods don't work, we will set up a post at a dining hall to get more interviews and survey results.

Research Method Instruments

Recruitment Flyer: Flyer QR code links to a quick email where Jackson Can send them the prewritten email. Placed on flyer boards around campus

We Need Your Help!

My partners and I are undergraduates in CSCI 3002:
Fundamentals of Human-Computer Interaction

We are working on a research project about **food intolerances, allergies, special diets (vegan, Kosher, etc) and picky eaters**. If you fit any of those descriptions and can spare a moment of your time to help with a research project, please contact us!

Contact Us Here!



Or email jagr4452@colorado.edu to learn about more ways you can help with this study. Participants in some studies will be compensated.

Recruitment Social Media Post: QR code goes to the survey, square-shaped for easier posting on social media

We Need Your Help!

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We are working on a research project about **food intolerances, allergies, special diets (vegan, Kosher, etc) and picky eaters**. If you fit any of those descriptions and can spare a moment of your time to help with a research project, please contact us!

Fill out the survey!



Or email jagr4452@colorado.edu to learn about more ways you can help with this study. Participants in some studies will be compensated.

Recruitment Email

Hello there!

Thank you for your interest in this research study. For context, this study is to develop a mock application for people with food intolerances or picky eaters for the Fundamentals of Human-Computer Interaction class.

We have a couple of different ways you can participate in our study!

If you are willing to be interviewed and are free at 12:30 pm, 12:50 pm, or 1:10 pm on Friday, February 17th, let me know and we can sign you up. There will be three interviewers and should take about 15 minutes to complete. The location is TBD but will most likely be at or nearby the ATLAS building. You will be compensated for your time.

If you would like to participate in an at-home diary study, you will also be compensated for your time. There you will keep a "diary" where you can keep notes of specific things such as meal planning, preparation, shopping, and eating out at restaurants.

Otherwise, you can fill out the survey linked [here](#). If you plan to participate in the interview or the diary study, please do not fill out the survey.

The compensation will not be anything crazy since we are unfunded undergrad students. Thank you again for your interest in this project!

Interview Script

- 1) Do you have any dietary restrictions?
 - a) Which ones?
- 2) Do you often go out to eat?
- 3) How often do you find yourself struggling to find a place to eat?
 - a) How long does it take?
- 4) When you go out of town/state, do you normally go to restaurants/fast food places that you know of or do you like to explore?
 - a) What concerns do you have about exploring new places?
- 5) How often do you use a mobile device to find food to eat?
- 6) Do restaurants regularly comply with your food needs?
- 7) Is there anything in advance that you have to consider when choosing a restaurant? Explain if so.
- 8) If applicable, is there a restaurant in mind that has complied with your needs?
- 9) Do you have to send food back?
 - a) How often?
- 10) Would you consider using an app that would help people with dietary restrictions, allergies, or food intolerances quickly find places?

Diary Study Script

Please write one or two sentences detailing your experiences with your food intolerance when engaging in the following activities. Particularly, note any potential ease or difficulty.

- Preparing/cooking food - Is it easy or difficult to prepare with your restriction

- Looking for restaurants - Is it easy or difficult to find a restaurant with your needs
- Finding food on a menu - Is it easy or difficult to locate food that fits your needs?

Keep these notes in your notes app, or another note application on your phone for ease of use.

Survey Questions

Survey Link: <https://forms.gle/Ygqnr34VN3EDNFe27>

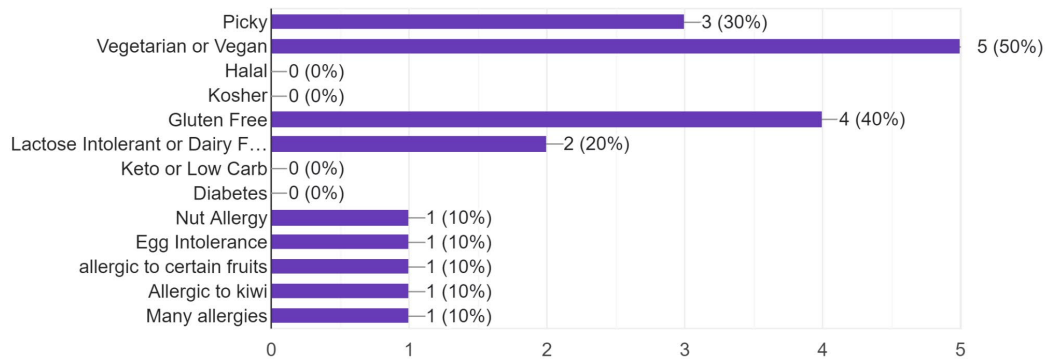
1. What restrictions surrounding food do you have?
2. How would you rate your difficulty finding food you can safely consume?
3. Do you often go out to eat?
4. When you go out of town/state, do you normally go to restaurants/fast food places that you know of or do you like to explore?
5. Do you use a mobile device to find food to eat?
6. Do you feel confident that you will be able to eat something at most restaurants you go to?
7. Are there any restaurants in mind that have complied with your needs? What have they done that complies with your needs?
8. Would you consider using an app that would help people with dietary restrictions, allergies, or food intolerances quickly find places to eat that suit their needs?

Executive Summary (Survey)

Through the week of February 12th, the group conducted an online survey via Google Forms. There were two versions of the survey, as for one link only those within the CU Boulder community could access and take the survey. The link to the survey was posted on social media as well as posted on flyers throughout campus in order to attempt to get as many responses and as diverse a demographic as possible. In the end, the survey was able to gather 14 participants, 3 of which were outside of the CU Boulder community. 13 participants were in our target audience of people with food restrictions. Of the 13 with food restrictions, participants had a variety of food

What restrictions surrounding food do you have?

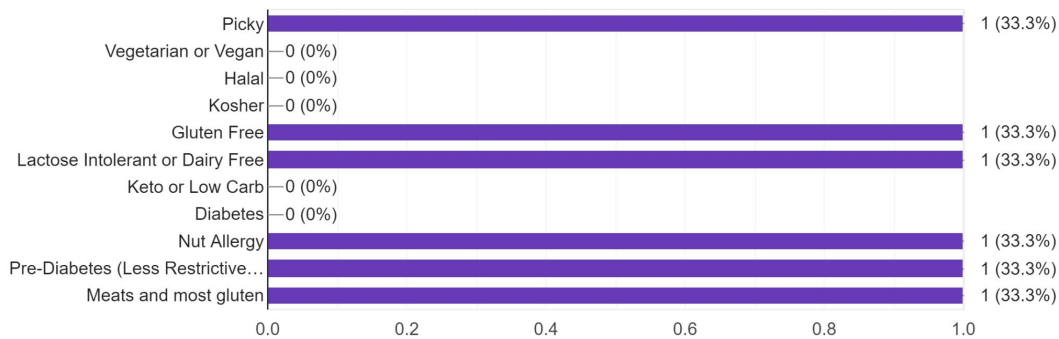
10 responses



restrictions, as seen in the charts below:

What restrictions surrounding food do you have?

3 responses



In addition to gathering information on food restrictions in participants, the survey collected data surrounding how often participants go out to eat, whether they are able to find food that they can eat in restaurants, and general trust that restaurants will be faithful when they promise to deliver food that is free of certain allergens or ingredients. Our research found that 6 of the 13 participants with food restrictions do not feel confident that they can find food to eat at any restaurant, and 5 of the 13 participants are unfavorable towards exploring new restaurants, or they are unable to explore new restaurants due to their dietary restrictions. 6 of 13 participants reported that they have difficulties in general with finding restaurants and food that they can safely eat. The results of this research are proof of the need for the app which the group is creating, as nobody should have to struggle with finding food they can eat, they should be able to focus on food they want to eat.

From data collected, the group found that this app is something that people, at least within the CU Boulder community, would use. The survey reported that all participants were favorable towards using an app that could easily locate safe foods in their surrounding area. After examining the findings of the survey, we will take into consideration different ways that restaurants handle food restrictions, as sometimes there are separate menus, the chef comes out to talk to people with allergies, or explains kitchen policy on the menu. The app will contain crowdsourced reviews of each restaurant, as in the survey we found that policies and what is written on the menu is not always followed, which can put customers in serious danger. The results from the survey also reinforced our desire to make people confident that they will be able to find something that they can eat, no matter where they are. After examination of our survey's findings, we know that people would be interested in using our app, however the group still has questions as to whether users would be willing to contribute to components of the app that would need crowdsourced reviews, and whether restaurants would be willing to comply in publishing their policies on the app.

Executive Summary (Interview)

The week of February 12th, we conducted the interviewing research method. We managed to interview 3 other CU Boulder college students that reached out to us based on QR codes that were created and posted around campus, living areas, and social media. These students were ages 19-23 and were fortunate enough to get a chance of interviewing both male and female students. As college students, they usually have to go get food for themselves, so having their input is beneficial to creating an app.

Each interviewee had some degree of dietary restriction. A few examples included having a peanut allergy, unable to eat certain types of fruits and vegetables, having bad reactions to dairy, etc. With these types of restrictions, it is often difficult and time-consuming to find a place that they can go out to by themselves or with a group of friends.

Our first student stated that their concerns for finding food was on the employees preparing the food and not completely following instructions due to human error. Including not completely having the full knowledge of what is in the food, so it is "hard to be safe" when finding a place to eat, especially when considering somewhere new. Our second student had some difficulty finding places to eat depending on the group that they are with. Sometimes it would take up to 20 minutes in order to find a place and sometimes eating at the same place gets boring. They have a list already made of restaurants and fast food chains that they keep on their phone as an easy solution and have the knowledge of what places they could potentially eat at and not have any problems. Our third and last student often goes out to eat but claims it is a very time-consuming option to go eat. They have to consider the types of food and what they use in order to make the food, making sure that some ingredients are left out.

A difficult situation that our interviewees had in common was the worries of not knowing exactly what was in their food and what cross contamination that could have happened when their food was getting prepared. Unfortunately restaurants are not completely reliable in providing the needs of some with certain restrictions and can tend to have food sent back which can take extra time in order to receive the food of their liking. Or another alternative is just not trying out new places, and going to chains that they are most familiar with and have complied to their needs with no worries.

Having the ability to have an app in order to find places and know exactly what will be in your food without being able to send food back or accidentally getting food contamination will help user's with time and let them consider multiple options in order to easily get food of their choice. With some additions we gained after these interviews, were to add a system in order to save people's preferences just like lactose intolerance and restaurants that have satisfied the user and recommend going back to. Having suggestions of places to eat can expand the user's knowledge of culture, including different places that were never thought of, and the fact that they don't need to have the same meal at the same place every time they would plan to go out.

Overall from these interviews, we were able to find some great findings on different people's needs and their struggles on finding places due to some issues that they have to consider. Which gives us an idea on how and what we could implement into our app.

Executive Summary (Diary Study)

Throughout the week of the 12th, we also conducted a diary study. We had two participants who kept a log of eases and difficulties when it came to preparing and finding food and restaurants. Specifically, we asked users to log one or two sentences detailing their experiences with their food behavior when engaging in the following activities: preparing and cooking, looking for restaurants, and finding food on menus. While not directly connected to the application we are producing, our group was curious to explore what people's cooking and shopping experiences look like. The information gathered from this part of the study could help us look for more information to implement into application features, or even change our application's direction toward shopping.

The first participant is a CU Boulder student living in the Bear Creek apartment complex. Most importantly, they have severe allergic reactions to shellfish and tree nuts. This led to some exciting observations due to the very common presence of tree nuts in restaurants and cooking dishes.

They often discussed, in their "going out to eat" section, how finding restaurants is difficult. They mention that they often avoid all Asian cuisine since there is often cross-contamination with tree nuts and shellfish. Cross-contamination seemed to be a theme in their writing, where while shopping and cooking they have to be extra careful not to contaminate or purchase contaminated goods. Also in the restaurant section, they mention that many places are getting better at adding common allergens to their menus. They say it is still difficult to tell what is safe and what is not. However, it seems that the restaurant staff is pretty good with common allergens in their food. However, this responder says they sometimes find it embarrassing to ask about allergens.

When cooking, this responder says that preparing food is easy, but almost everything has to be made from scratch for safety. They say that many of the options for food they would like to try are difficult or impossible to make due to the required ingredients and substitutions. They also mention that it is difficult to bake since baking often requires tree nuts.

Lastly, when shopping, this user states that it is very difficult to buy a lot of things due to typical cross-contamination with nuts and allergens. They mention a specific issue when shopping; allergen labels are often annoying to decipher since the FDA classifies different things in general categories. The example the responder gives is that coconut is considered a tree nut, even though the responder is not allergic to it.

This makes it very difficult to tell what actually has tree nuts or what has just coconuts. Very interestingly, they mention that they cannot eat many vegan options due to the fact they usually contain tree nuts.

The second participant is a CU Boulder student working in the ATLAS program. They are vegetarian. This user chose to create their diary in a day-by-day style, rather than an analysis of their week.

When eating out, this user mentions that they usually do “a bit of research ahead of time, but I (they) didn’t get the chance to”. Very similarly to the previous respondent, they also mentioned that they feel some embarrassment when ordering in public. More specifically, they mentioned a nearby coffee shop that, while convenient, is often busy and stresses them out when taking extra time to order a special drink. They state, “I don’t like to be that person who stands in front of the line for an absurd amount of time to find a drink that doesn’t have milk (with lactose) in it. It feels awkward, and I feel like people might lose their patience with me.” I found this very interesting and am curious about how a faster online ordering process might eliminate some embarrassment. They also mentioned looking at the restaurant Little Caesars but were disappointed in their hard-to-navigate site that overly advertised and did not allow them to find a vegetarian option. They even mention word searching for the phrase “veg” with no results.

When shopping and cooking, they mention that it is often easier than going out to eat. They mention that the milk and proteins they use at home do not affect their digestive system as much as in restaurant meals. They mention that they usually make a meal in the morning and bring it for lunch during the school day. Most interestingly, they mention that some types of lactose, such as ice cream and cheese do not affect them. This is important as it may impact the way we create our app.

This study provided some very interesting information as far as refining our app goes. First, our second respondent’s claim that ice cream and cheese are safe makes me think we should ensure our application provides options to further hone each allergen filter. This is further supported by our first respondents’ claim that coconuts, which are classified as tree nuts, are safe but anything else is not. This makes me curious about what other allergens can be broken into subcategories. The second vital piece of information we acquired was that some sites and restaurants do not feature special diets, such as vegetarianism, on menus. This makes it difficult for people to find vegetarian and vegan options at restaurants they enjoy. This is important because it suggests our application should look into these restaurants’ vegetarian options and

would be sure to feature them on the app. Lastly, our first respondent mentioned that they avoid a certain type of cuisine due to fears of cross-contamination. This suggests that our app may implement a way to filter out types of cuisine or allow users to mention which places are safe or not when it comes to cross-contamination. This makes me curious to see if many others with allergens avoid certain types of cuisine to justify this potential app feature.

Research Summary

Our group met virtually on Zoom at 7:30 pm on Monday, February 20th, 2023. During the meeting, we each discussed the findings of our research studies. This provided a unique opportunity to match our results together and see where our idea can be further improved.

Project Idea: Develop a map application that allows users to use touch or voice to find food that meets food allergy, intolerance, or special diet needs.

Motivating Questions:

1. How does the restaurant hunting process work with your food intolerance?
2. Do you have allergies? If yes, how do you notify restaurants to prevent cross-contamination?
3. What information do you wish restaurants would give regarding food items?
4. Are there lots of restaurants that cater to your needs in the local area? Have you explored the restaurants around you to see the options that meet your food needs?
5. Do you often challenge yourself with new foods? If so, how often?
6. Do you feel safe eating the foods that restaurants serve you?

Research Methods

- In-person interview with three potential users, all with different food intolerances or allergies. This is to ask general questions about the challenges of eating out.
- Diary study with 2 potential users to understand the daily challenges of having a special diet or food restriction. This also provides insight into some of the finer details of each restriction.
- Survey 15 people to analyze the broader idea. This provides us with validation of the idea and also allows us to see how participants feel about certain concepts and ideas.

Design Recommendations

1. Crowdsourced review system: Many of our participants in all of the research studies mentioned that certain restaurants or styles of cuisine meet their needs. They also mentioned that knowing which restaurants accommodate needs better than others would be helpful. With this in mind, we feel that it is important

to implement a crowd-sourced review system where users can support restaurants or styles of cuisine that fit their needs.

2. **Detailed Allergen Filters:** In several research studies, but most prominently, the diary study, users claim that they are allergic or intolerant to certain subsections of common allergens. For example, some are only lactose intolerant to a few dairy products. This has inspired us to implement more detailed filters so users can access more meals that fit their specific needs.
3. **Online Ordering Connectivity:** The diary study and interviews yielded results that claim that some users experience embarrassment when ordering with special food preferences. This has inspired us to implement an online ordering feature so that users can order ahead of time or more quickly in the restaurant.
4. **Voice Interaction and Profiles:** Many users reported a high amount of time when it comes to locating a new restaurant that suits their needs. To solve this problem, we have decided to implement profiles and voice interactions so that users can quickly locate food or preferred restaurants nearby. This mitigates a lengthy search process and streamlines the user experience.