Test Report

Description of Application

We created #1 Dining in order for students at UMass Amherst to have a consolidated platform in which they can discover all the dining locations on campus and receive tailored recommendations based on the individual student's specific preferences. We also want to promote student-run businesses and dining events on campus. Therefore, our web app includes a short quiz to provide students with dining location recommendations and a map and menu feature to make it easy for them to find food close to them.

Hypotheses

1.) One of the main features that we implemented in our web application was our menu feature. Our menu feature provides a consolidated source for all dining halls, student-run businesses, and some other major food vendors on campus. One of the most important parts of our web application is that we wanted it to be quick and easy to use. One of the most important parts about an application is the layout of its buttons/links and how one navigates through a website using these features. Thus we wanted to maximize speed while also having quality usability. Therefore, the first hypothesis test we wished to conduct was related to the speed that the user can access a specific menu on our web page. Specifically, we wanted to test speed by trying out various types of ways to access the menus on our web page. We did this by testing whether or not a tab on the top of the page was more or less efficient than scrolling down to the menus on the landing page.

We tested:

H_0:There is no difference in user preference when navigating to the dining menus from the tabs on top of the page or by scrolling down past the quiz.

H_a: Selecting a menu by scrolling down will be more desirable than selecting from the tabs on top of the page.

2.) Another primary feature we wanted to test was our quiz feature. This feature was designed to allow students to get a better idea of where they want to eat on campus. The main point of the quiz is it allows the user to tailor their dining experience. However, we also wanted to make sure that the quiz was fast and easy to complete while still getting all the necessary information. Thus, we wanted to make sure that the time to complete the quiz was not too long. Therefore, the second hypothesis we wished to test was the length of time it took a user to complete the quiz. Specifically, we wanted to make sure that the quiz takes at most 2 minutes to complete.

We tested:

H_0: μ ≤ 2 minutes

H_a: μ > 2 minutes

Where μ is the average amount of time it takes to complete the quiz.

3.) The final part of our application that we wished to test was the overall usability of the web application. To be more specific, we wished to test whether a user would be able to access the website on all major internet-connected devices (desktops, laptops, cell phones, etc.). Students' days can be very busy, and they are constantly interacting with many different devices that have unique operating systems (iOS & Android) and user interfaces. We wished to test and make sure that regardless of what device the user is using, as long as they are connected to the internet, they will have access to our website and can use its features properly (take the quiz, view menus, navigate the map).

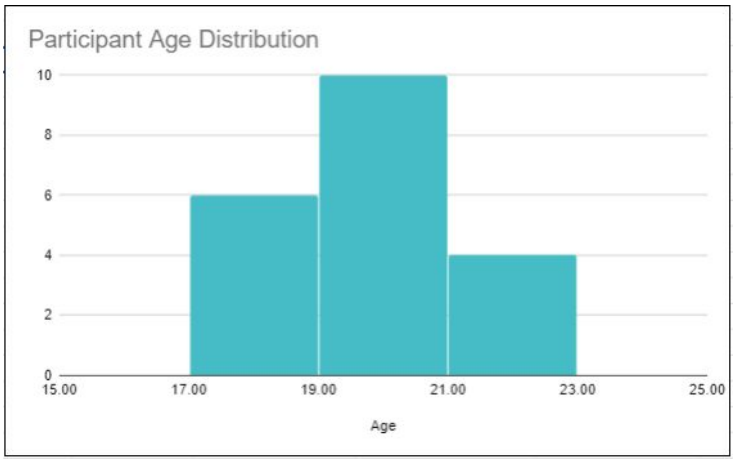
We tested:

H_0: There is no difference in functionality/performance (that is all features are working as intended) based upon the type of device/brand that is being used

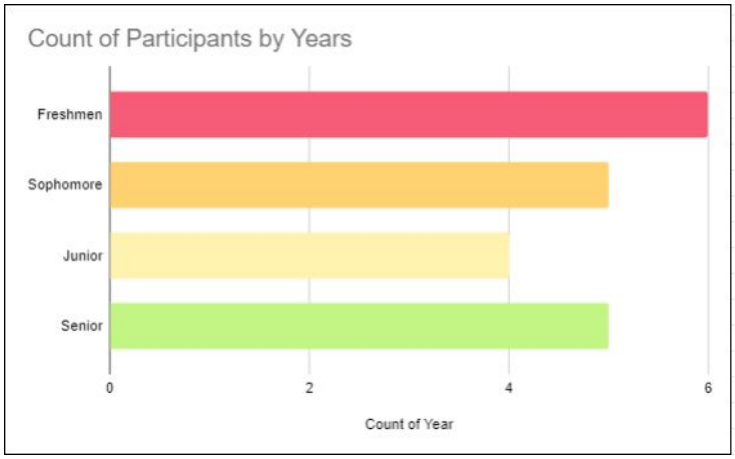
H_a: There is a significant difference in functionality/performance across different devices

Participants

When choosing our participants, we selected students who are currently attending UMass Amherst. The reasoning behind this is because our web application is targeted at active students who frequently dine at the food venues on campus. We collected demographic data in our pre-test survey. The average age of participants was between 19 and 21 and the years at UMass were relatively even, with freshmen making up the most participants (Figure 1 A-B). Most participants were female, lived on campus, and had an unlimited dining plan, though other groups were represented (Figure 1 C-E). Meal plan types refer to the several types of meal plans offered to students by UMass Dining. All students tested had meal plans and all meal plans offered access to all types of dining at UMass (ie: dining halls, retail dining, etc.). Most participants accessed the site on a laptop (Figure 1F).



A



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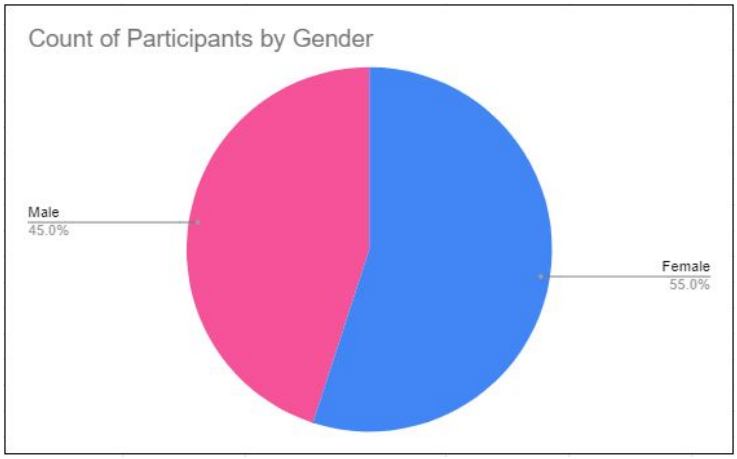

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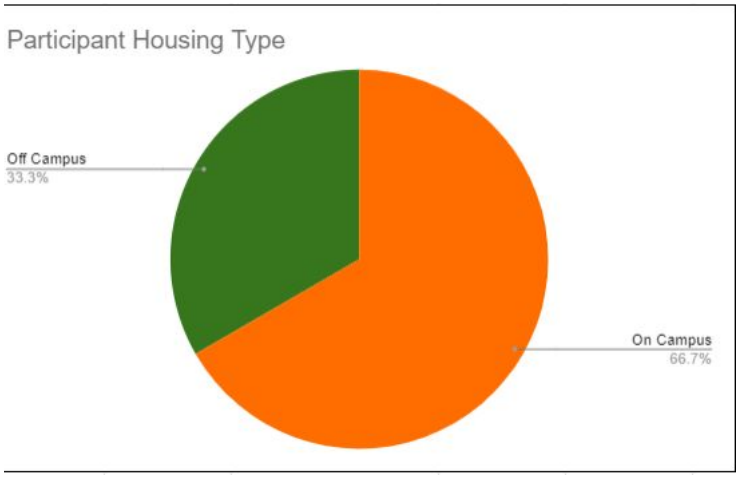

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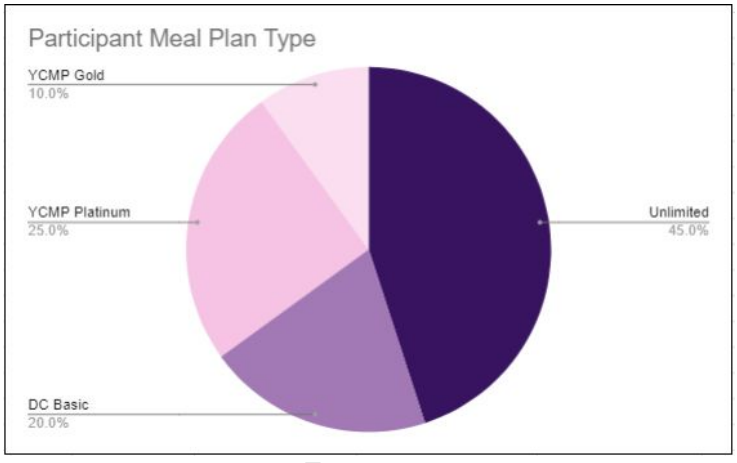

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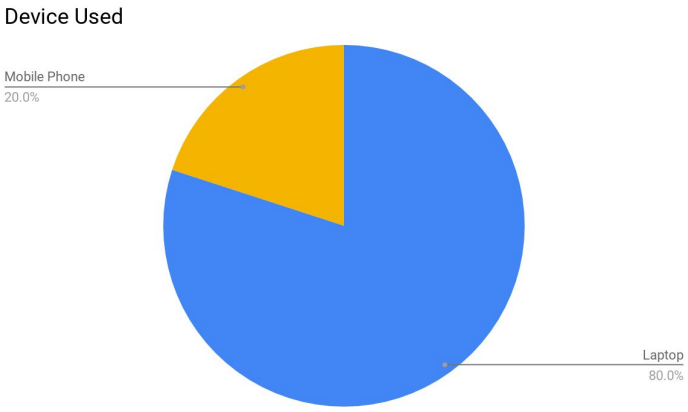

F

Figure 1. Demographic data collected from pre-test survey. A: Participant age distribution. B: Participant class level distribution. C: Participant gender distribution. D: Participant housing distribution. E: Participant meal plan distribution. F: Device used to access site.

Experimental Design

When the participant arrived, we would first start by giving them a brief overview of what our project is and what the goal of our application is. We would then introduce the web platform to participants and explain the problem we aimed to solve and the three main features of our application. Participants then filled out a pre-test survey asking demographic questions as well as some other general information about their usage of the UMass Dining App and type of device used to access the #1 Dining website for testing. We also told the participant that all of their answers would only be used for the purpose of this project and that the data would be properly disposed of afterward. They were free to stop at any time as well as have their data deleted and removed from the study. We also told the participants that there was a post-test survey to gauge our application's performance/usability.

To begin, we asked the participant to start by taking the quiz. While taking the quiz, we would time the participant without their knowledge and record how long it took them to finish the quiz. At the same time, the interviewer would also ask for the user to follow a think-aloud technique as he/she was navigating through the quiz. After the results appeared, the time it took for our participant to complete the quiz was recorded in order to get an insight into our hypothesis regarding the efficiency and time effectiveness of this feature. From there, the participant would navigate to the menu. We began this by first asking the participant to locate the menu on our web page in an unguided fashion. We gave users both methods of accessing the menus, both with a tab and on the same page as the quiz. This was so we could gauge the user's natural actions as well as test which menu type worked best. From there, once a user was on a menu, we had them try hopping from one dining location's menu to another, as well as pressing the buttons for dietary information on food that they found interesting. For the final part of the experiment, we had the user test the map feature of our web application. We first asked the user to find the location of their top dining venue from the quiz results. Upon navigating to the map to find one particular dining venue, we asked them to run through the steps they would take to locate student-run businesses to determine whether our map is helpful in that manner. We also tested the efficacy of our map by asking users to identify the location of a small retail dining area such as a cafe. After testing, the participants were given the post-test survey.

Questionnaires

Post-test survey:

1. Was the application working on your device?
    a. Most students answered yes
2. If the previous question was answered no, what was not working?
    a. The nutrition buttons were not working on the mobile version for some users.
3. Were the quiz questions relevant to the experience you want at a dining location?
    a. Most students answered yes
4. Were there any questions that should have been included?

    a. One participant said they wanted a random generate question like “do you want to randomly generate location recommendation?”, then have a randomly generated recommendation.
    b. One other participant said the location should be considered in the “What are you in the mood for?” quiz. A great portion of their decision-making process is in which area of school their next class is.
5. Were you satisfied with the dining options suggested by the quiz (Likert scale of 1-5 where “1” represents people are not quite satisfied and “5” means people were totally satisfied)?
    a. The average was 5 out of 20 students surveyed, suggesting people were relatively satisfied.
6. Were you satisfied with the map details (Likert scale of 1-5 where “1” represents people are not quite satisfied and “5” means people were totally satisfied)?
    a. The average was 5 out of 20 students surveyed, suggesting the map feature was well-liked. We think this is because students identified locations they didn’t know about.
7. Any changes to the map?
    a. One user said the map did not show their own location which was a feature they would want.
    b. One other user said the map is a little tiny. While they were using the map on their cell phone, it was displayed in a really small window.
8. What details do you look for on the menus?
    a. One person said they would like a “popular” or “new” label on food items. They can then quickly scan the menu and see what is a favorite.
    b. Another user pointed out the menu is not maroon which is not “UMassy”.
9. Did you have any difficulty accessing the menu feature? If so, did you have a preference as to which method you preferred
    a. One user stated that they did not have any difficulty accessing the menu and though it was really helpful having the quiz feature in the scroll down menu so they could easily progress though the features.
    b. Another student stated that on their first run through it again nice being able to see all of the menu options on the scroll down but thought that the pull down menu would allow for easier access in the future.
    c. A third student said that they did prefer the pull down menu as it was similar to applications they were used to and that while helpful in some cases, scrolling down to the menu every time would be annoying.

Observations from Test Administrator:

1. How long did it take the participant to complete the quiz?
    a. The average time to complete the quiz was about 1 minute 20 seconds. The maximum time was about 1 minute 45 seconds and the minimum was 55 seconds.

Discussion

Hypothesis 1:

H_0:There is no difference in user preference when navigating to the dining menus from the tabs on top of the page or by scrolling down past the quiz.

H_a: Selecting a menu by scrolling down will be more desirable than selecting from the tabs on top of the page.

From the responses to our Post-Test Survey, we identified that users found it to be a natural progression of the thought and decision making process to have the menus right underneath the quiz so that once they have attempted the quiz, they can just scroll down to the menus and pick the menu for the dining location that they have been suggested. We also found that once users got more comfortable with the application, they also liked to use the drop down menu as well. Thus having both menus included in our application provided a good mix of usability for all types of users without visually overwhelming. Thus as a result, we did not reject our null hypothesis

Hypothesis 2:

H_0: $\mu \leq 2$ minutes

H_a: $\mu > 2$ minutes

Where μ is the average amount of time it takes to complete the quiz.

As per our Post-Test Survey, we found that most users were able to complete the quiz within 2 minutes, including those users that accessed it using a mobile browser. Specifically, after conducting many rounds of testing, we found that for users who did not have experience with the application, it took them around 1 minute and 20 seconds to complete the quiz, well under our benchmark of under 2 minutes. In the future, it would be interesting to see what the time would look like for users who regularly used the application as it would mostly likely take even less time. However for the purpose of this round of testing, there was no evidence to support that the mean of time of the testing population to complete the quiz was greater than 2 minutes and thus we failed to reject our null hypothesis. We found that one of the parts of the quiz that took the longest to answer was the allergens part. This could be because it has the most options and requires more thought from the user. Another question that may take up a majority of the time would be the dietary preference question due to the number of options provided and for similar reasons as the previous question.

Hypothesis 3:

H_0: There is no difference in functionality/performance (that is all features are working as intended) based upon the type of device/brand that is being used

H_a: There is a significant difference in functionality/performance across different devices

From our Post-Test Survey, we found that the majority of people had the application work on the devices they were using. This included laptops and cell phones, running Windows, Mac OS, Android, and iOS respectively, which all worked as intended. Cell phones in particular, both on Android and iOS, did run into an issue in regards to the menu feature. The majority of the web app is responsive, but we did run into some issues with the menu feature's nutrition buttons not appearing as intended on the website despite being functional. Given the context that this is an MVP, we feel that this type of problem would be easily fixable if we were to deliver it as a product. Other than that, which seems to be a responsive web design problem, we found from our results that there was no significant difference in functionality and performance based on the type of device used.

Team Member Contributions

Jarrod Daniels: Hypothesis Creations, visualization of demographic information, experiment description and text editing.
Arianna Kazemi: Questionnaire, application description and discussion
Xiaoxue Lou: questionnaire answer summary
Annapurna Jagasia: Discussion and post test surveys.
Vista Sohrab: Experimental Design and post survey discussion
Kuhu Wadhwa: Discussion post
Corey Kozlovski: Experimental design/description
Efosa Ighodaro: Hypothesis creation
Jinhong Gan: Hypothesis creation