DinnerCall

Final Report

FA16: INTERACTION DESIGN METHODS: 24620

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1. INTRODUCTION

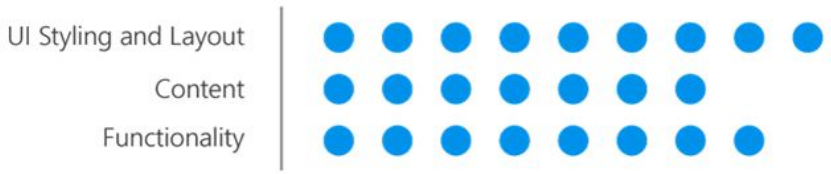
A usability evaluation was performed on the DinnerCall mobile application by our team for over a period of 8 weeks using different inspections methods and data analysis techniques. Our aim was to identify overall usability problems faced by the target users of the DinnerCall application and provide recommendations for improving these issues.

Overview of Client and DinnerCall App:
Founded in 2015, DinnerCall is a public benefit corporation whose primary mission is to encourage and enhance the family dining experience by providing a convenient way for users to easily order meals from their favorite grocery stores. Their mobile application launched in March 2016, and allows users to browse meal options offered by a given grocery store, order a meal, and have it delivered to your car upon pickup.

The team conducted a usability test using a live version of the DinnerCall application, as well as, a developmental build to run certain tasks. The test was comprised of one test participant and two proctors, who recorded and administered the test. The sessions were conducted in a busy environment in order to allow all tests to have a similar setting in which DinnerCall believes their application is used. The session captured each participant's task completion rates, comments, questions, and satisfaction ratings. This data was then used to recommend enhancements which could benefit the application by making it easier for the users.

2. EXECUTIVE SUMMARY

The team built on prior knowledge gained from earlier inspection methods such as the cognitive walkthrough, contextual inquiry and interviews, and heuristic evaluation in order to write a test to identify major usability issues. The results of these methods included a common set of usability problems found which we segregated on basis of the four tasks of the application and then the recommendations for each of these problems.



We then identified three usability problems from the aforementioned inspection methods:.

1. Time-picker is difficult to use, and takes users too long to choose their preferred time
2. Lack of a back button
3. Buttons need consistent styling

During usability testing, the team used the above usability problems to build research questions for the team to better identify what the user struggles with in the application. The research questions are listed below:

1. Did the user easily understand what is clickable in the application?
2. Was it easy for the users to order the dinner they wanted?
3. How long did the user take to set the meal delivery time?
4. How long did the user take to track his dinner?
5. Did the user understand the task and it's use?

Through our testing, we evaluated the DinnerCall application for two primary qualities: ease-of-use/efficiency and user satisfaction. After all 10 tests we identified that overall the usability metrics used to evaluate the interface indicate that there are issues with the application; however, based on the data we received from ease-of-use/efficiency, we saw that many users indicate that the application was not very difficult to understand, and they would use it if given the opportunity. Users only mentioned their frustrations when in finer details of

the application such as preloading their DinnerBucks account, or share the meal on social media. The team found that nearly all novice users were able to navigate the interface, though most with encountered issues.

This document contains the participant feedback, satisfactions ratings, ease or difficulty of use metrics, time on task, errors,and recommendations for improvements. A copy of the test plan, protocol, and questionnaires can be found in the *Appendix*.

3. METHODS

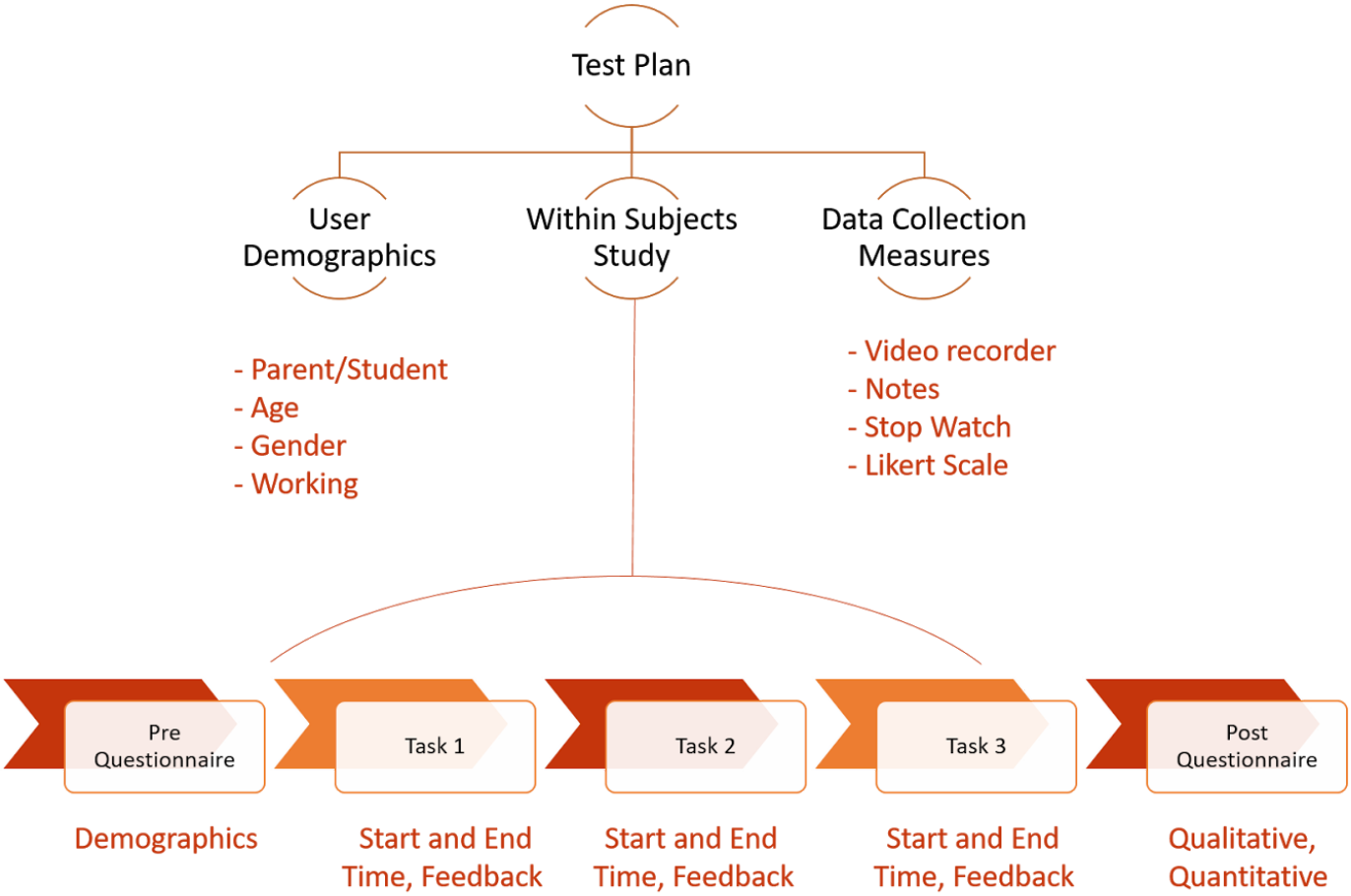
Recruitment and Participants:
The users were mostly recruited by word-of-mouth and a couple of them by emails. Our team recruited overall 10 participants for this study which consisted of 6 parents and 4 students. The participants were purposefully recruited in such ratio as to cover DinnerCall's primary (which are parents hence 60 percent of the recruits are parents) and secondary user groups. The participants were given a week's time to schedule the date and time for the study with us. Considering the availability and schedules of participants the tests were conducted in three different slots within the same week. The participant were asked to go through a pre-questionnaire (See the Appendix - B) before the experiment to understand some demographic questions about their age, family members and eating habits. Each participant were asked to perform three tasks, a pre and post interview over a period of 36 mins. All the participants started the experiment only after signing the consent form (See Appendix - B) and were thanked for their time at end of the study.

Number of Participants	Age	Gender	Occupation
4	35 - 55 years	Female	Working Parent
2	35 - 55 years	Male	Working Parent
2	20 - 26 years	Female	Student
2	20 - 26 years	Male	Student

Environment and Location:
All the three test sessions were conducted in a controlled environment setting with at least two team members being present at the setting all time. The location of these tests was 4th floor of IUPUI university library. The entire experiment was video and audio recorded with the permission of the recruits. The setup of the environment included a table and three chairs, one pre-setup camera, two android mobile devices and one iphone (with pre-installed DinnerCall app) mobile device. One android device was given to the users which had pre installed DinnerCall application and other android device was for audio recording and using as a stop watch. Also, one team member was responsible for taking notes throughout this experiment and one for guiding, interviewing the user and noting the stop watch time.

Data Collection:
The data was collected in form of video, audio as backup, written notes, pre and post questionnaire feedback and noted time intervals.

Usability Study Method:



Each participant was was first greeted, then asked to sign a consent form after giving them a brief introduction about purpose of this study. The participant was then asked to perform three pre-decided tasks related to 1. Order dinner, 2. Preload Money and 3. Track your Dinner (refer Appendix B for detail task description) using the DinnerCall mobile application. The method used for this study was within-subjects design. After getting the consent forms signed the participants were asked a pre-questionnaire for 5 minutes and then briefed about the first task for 2 mins by one of us. This was followed by performance of the described task by the participant. The other two tasks were followed in a similar fashion after completion of the first task. The participant was asked to think aloud while performing all three consecutive tasks and, his hand and the mobile device screen was video recorded all along. The three tasks were concluded with a post interview session of 5 mins. One researcher took notes during this entire

36 min study in every session. The primary quantitative data measured during this entire study was - time taken to perform each task and time taken to change the “time picker” in task 1 and task 3. Qualitative data was collected mainly from the post interview and the observational notes taken during the tasks. Specific observational notes were made by the researcher when the participant failed to understand any aspect of the application. The success rate for each task was also measured, on basis of whether the participant successfully completes the task without any help, with moderate help or asks for a lot of help to complete task. Qualitative data about each task was collected using the Likert Scale for understanding the ease of use. Post interview provided us with feedback about the overall application with help of likert scale and open ended questions (see Appendix B). After the post interview each participant was thanked for their time and effort.

4. RESULTS / FINDINGS

Through our testing, we evaluated the DinnerCall application for two primary qualities: ease-of-use/efficiency and user satisfaction.

Ease-of-use

We determined DinnerCall's ease-of use by measuring user task completion, the time it took users to accomplish each task, user rating of the ease of each task on a 5-point Likert scale, and via qualitative data gathered through observations of the user's interactions with the application.

Task Completion

A task was considered successfully completed if the user was able to achieve the goal without the assistance of a moderator.

Task	Goal	Success Rate
Ordering a meal and scheduling for pickup.	Order a Southern Shrimp Scampi for a family of 4 and schedule pickup for pick-up at 7 P.M. tonight. Task is complete when user reaches the payment screen.	Out of 10 users, the success rate for this task was: 60% Success w/o assistance: 6 Partial success (w/ assistance): 4 Failure: 0
Uploading funds to your account	Load $50 into DinnerCall Account using the provided credit card information.	Out of 10 users, the success rate for this task was: 50% Success w/o assistance: 5 Partial success (w/ assistance): 5 Failure: 0

Tracking a family dinner.	Track a 45 minute dinner you ate with your two family members yesterday, and include one photo. Share it on the provided Twitter account.	Out of 10 users, the success rate for this task was: 0% Success w/o assistance: 0 Partial success (w/ assistance): 0 Failure: 10

By this metric, the easiest task to accomplish was the ordering and scheduling of a meal, with a success rate of 60%. However, because of reasons stated in the next section of this report, the success rate of the Tracking task is not valid given an issue with our test protocol.

Task Timing

We began timing the user as soon as they began interacting with the screen and ended once the task was complete.

Task	Average time spent on task in minutes
Ordering a meal and scheduling for pickup.	4:06
Uploading funds to your account	3:56
Tracking a family dinner.	4:17

This metric alone cannot be used to gauge the ease-of-use given the varying complexities of the tasks.

Ease-of-use User Rating

After each task was completed successfully or unsuccessfully, users were asked to indicate how easy or difficult the task was on a 5-point Likert scale (1-Difficult, 5-easy). We then averaged these values.

Task	**Average User Rating** (1-Difficult; 5-Easy)

Ordering a meal and scheduling for pickup.	3.7
Uploading funds to your account	3.3
Tracking a family dinner.	2.7

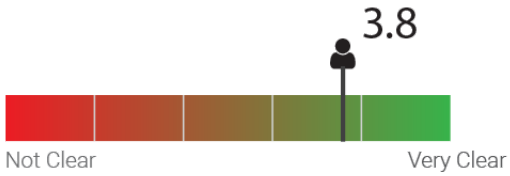
By this metric, the easiest task according to users was the task of ordering a meal and scheduling the meal for pickup.

User Satisfaction

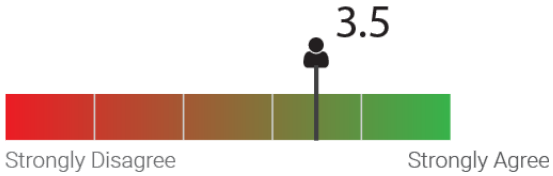
Once each user had completed each task, we gave them a post-questionnaire with four questions in the form of a Likert scale.

How easy was it for you to use the DinnerCall application?

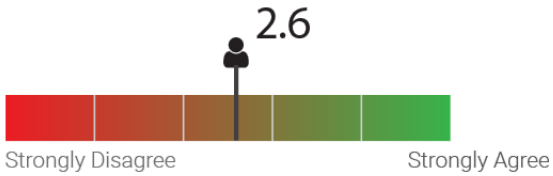
How clear is the primary objective of the app?



I enjoyed ordering food through this application.



I would use DinnerCall for my meal preparation...



In addition, we asked a binary question: if there was the ability to order more than one meal at once, would you use it? Out of 10 users, 8 said that yes they would, one said no, and one said, “Probably not, but I do think it should be a feature of the app.”

Qualitative Data

We recorded our observations during the performance of each task and encouraged users to voice their thoughts throughout the task.

Task 1:

During the scheduling portion of the task when users needed to change the pick-up time using the application's time picker, observers noted frustration in 9 out of 10 users. Furthermore, 5 out of 10 users verbally expressed their frustration with the time picker.

Notable user quotes regarding the time picker:

"I don't like hitting the plus button to move the pick-up time in five minute increments."

"Why does this require so many clicks?"

"This should be a dropdown or something."

"I don't like that."

Another notable quote about this task:

"It'd be good if you could enter a date and it would only show you meals for that day."

8 out of 10 users were noted as showing confusion or frustration when they arrived at the meal detail screen, and in the case of 6 of those users, the cause of frustration was the question, "How many meals do you need?" One user said, "Do I need one meal that serves 4 people, or do I need 4?"

Task 2:

For the task of uploading funds, notes suggested that a large portion of time was spent in the subtask of locating the screen where uploading takes place. Observers noted this as a major source of frustration for users. Of the five users who needed assistance, all were given assistance during this subtask.

In particular, the Preload Balance button was the element that caused the greatest amount of confusion. Users were noted as passing it on numerous occasions as though it were static. Instead, they would go to the main menu and navigate to the reward bucks screen, where no link to the pre-load screen exists.

A second commonly recorded pain point was the adding of credit card information. Users stated that they felt uncomfortable with the thought of adding credit card information into the application, even though they knew it was mock data. They suggested allowing for one-time uploads rather than the automatic saving of card info,

Notable user quotes regarding this task:

"No one will notice the 'Pre-Load Balance' button."

> “Storing a card makes me apprehensive. It would be easier to just do a one time reload. Or reload from Google Pay or Apple Pay.”
>
> "Had to use my brain too much, wasn't as user friendly, navigational issues with finding payment settings."

Task 3:
Notes indicate that this task proved to be the most problematic. Of the ten users, two of them accidentally closed the app trying to find a back button on screens where none is implemented.
All users were reported as inadvertently diverting from the main task by mistakenly pressing the wrong buttons, and all required some form of assistance.

Eight users were noted experiencing a navigational issue. Three were recorded as halting in their task at least once by the lack of a back button.

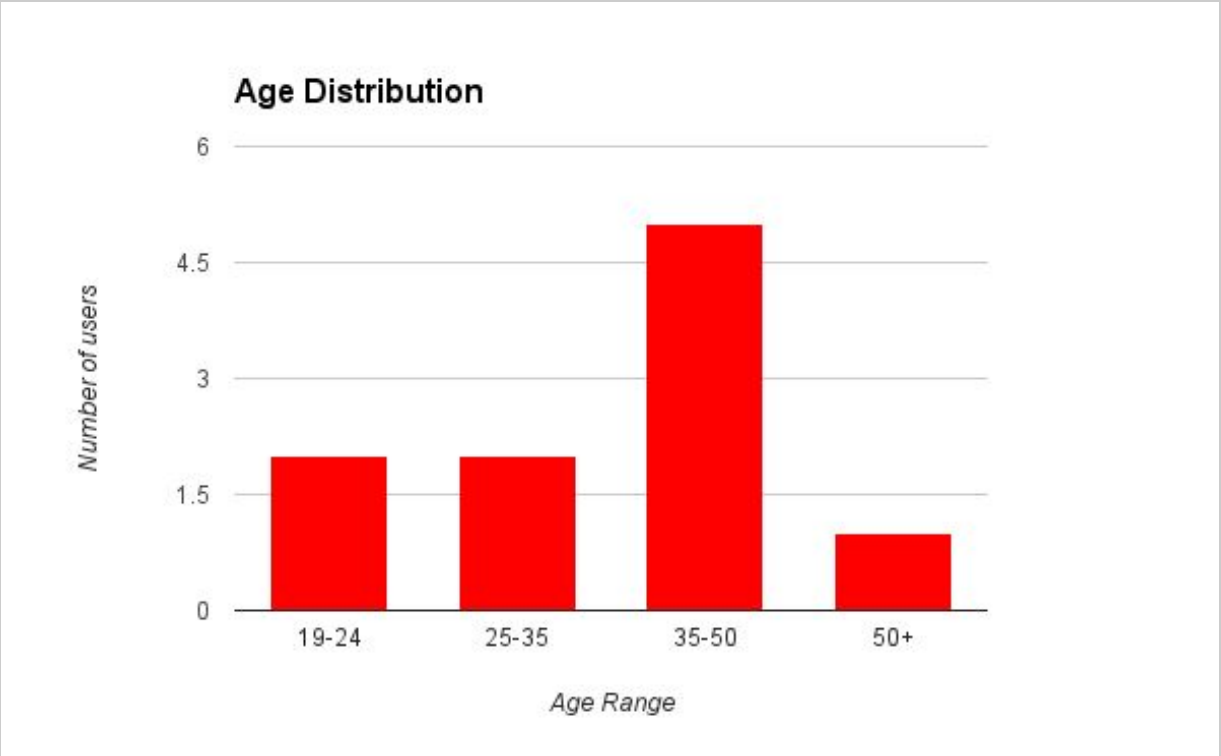
Notable user quotes from this task:
“The whole track thing is confusing to me. I'm thinking tracking = track shipping.”
After a few seconds of looking at the tracking home screen: “I don’t know what this is.”
“How do I go back?” Clicks the corner of the screen and the app closes. Later: “A back button would be nice.”
"Navigation was impossible, not user friendly at all."

Pre-questionnaire Data

Our pre-questionnaire yielded the following information about our users:

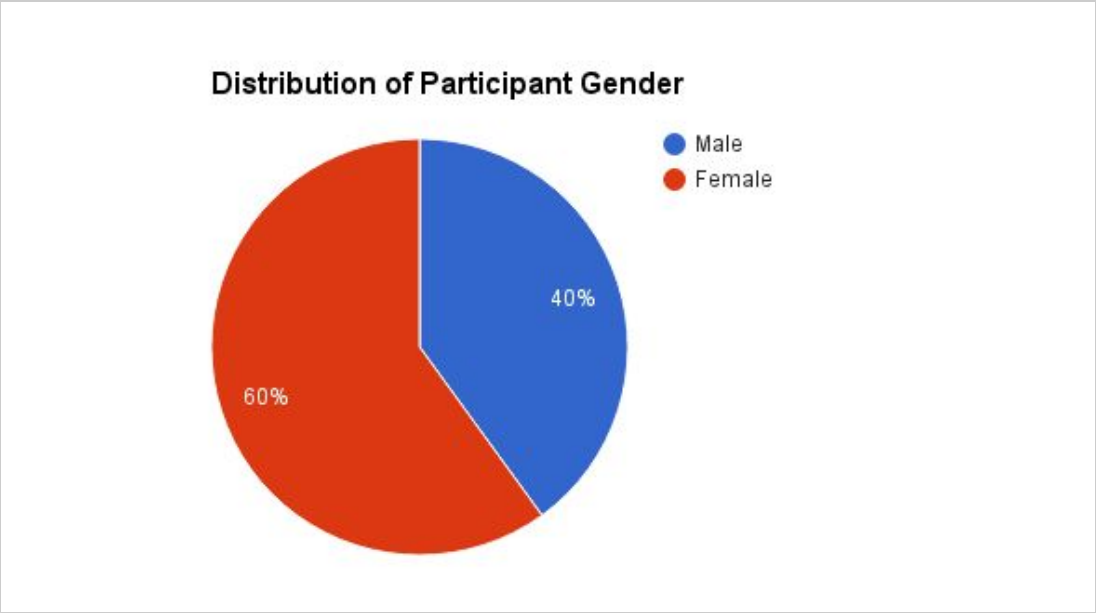
Distribution of Users by Age

Age Ranges	Number of users
19-24	2
25-35	2
35-50	5
50+	1



Distribution of Users by Gender

Gender	Number of users
Male	4
Female	6



Distribution of Users by Meals Eaten Out Per Week

Meals Eaten Out Per Week	**Number of users**
None	1 user
1-2	3 users
3-4	4 users
5-6	1 user
All meals	1 user

Parents vs. Students

Of our users, six of them were parents and four were students with roommates.

5. RECOMMENDATIONS

1. **Problem: Back Button**

User Study: 7 out of 10 people we interviewed faced this issue.

Reason: Users are likely to get lost while navigating, and if they can't find their way back easily or close the app accidently, they may bail on the app instead of restarting it.

Heuristic Principle supporting it: User Control and Freedom

Severity: 4

Design solution: Add back button on every page.

Reason: This will make the navigation

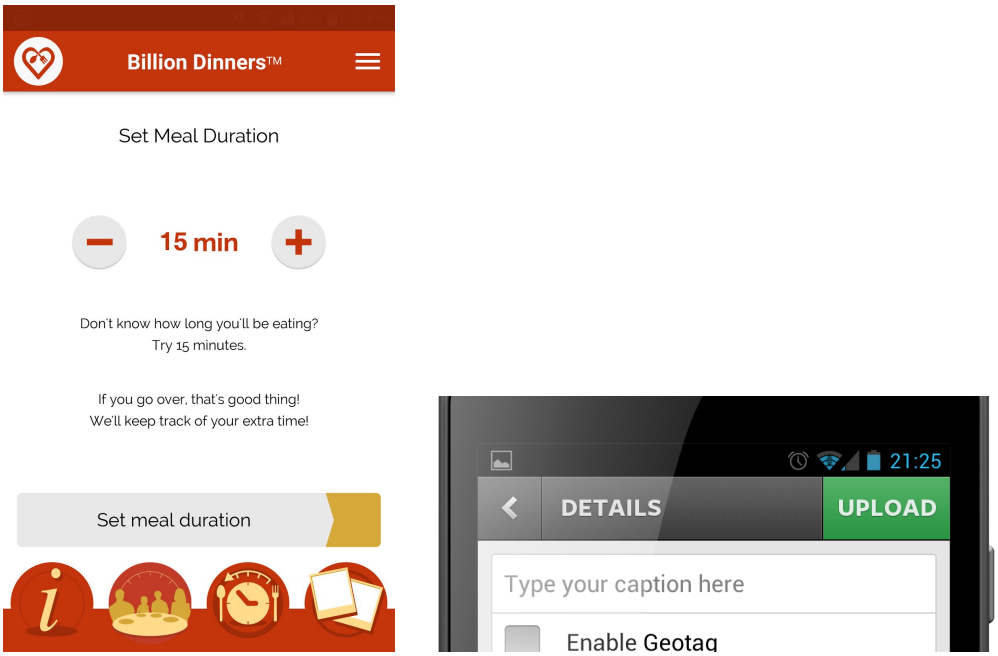


Image left, right: The image has no back button on the top left; this image has a back button, which is what we recommend

2. **Problem: Scrollbar for Twitter**

User Study: 10 out of 10 people we interviewed faced this issue.

Reason: The user can't click the twitter button to share his meal's description since there is no scroll bar.

Heuristic Principle supporting it: User Control and Freedom

Severity: 4

Design solution: Create a scroll bar for this dialog box.

Reason: This would let the user access the twitter functionality of the app.

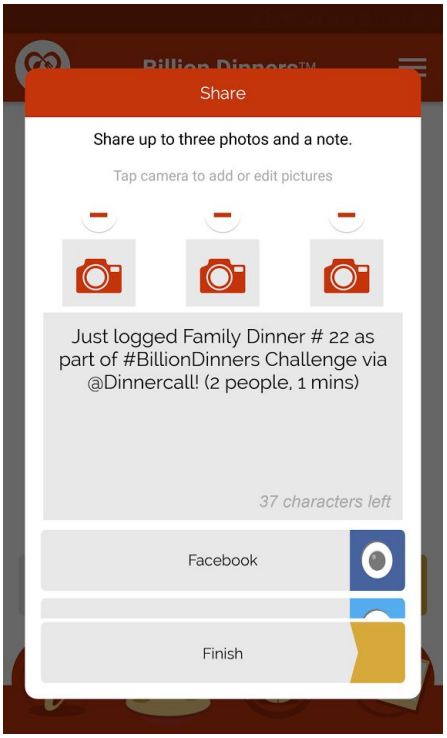


Image: The twitter option is hidden, and without a scrollbar it is impossible to click

3. **Problem: Time Picker**

User Study: 9 out of 10 people we interviewed faced this issue.

Reason: The time picker changes at intervals of 5 min, making the user click the “+” button multiple times to select a specific hour. This is time consuming and not user-friendly.

Heuristic Principle supporting it: Flexibility and efficiency of use

Severity: 3

Design solution: Create a scroll to select the time.

Reason: This makes the process faster and user-friendly.

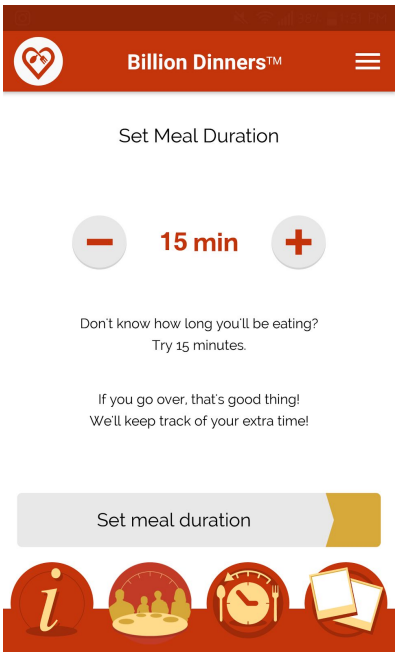


Image on left, right: The "+" sign increments the min by 5min only; scroll for time to set the time is what we recommend

4. **Problem: Button Styling**

User Study: 7 out of 10 people we interviewed faced this issue.

Reason: Due to the visual scheme of these buttons, it is difficult to identify them as buttons and users usually miss or overlook them to be a part of the non-interactive background.

Heuristic Principle supporting it: Consistency and Standards

Severity: 3

Design solution: The ideal solution to this problem would be to make the buttons more distinguishable than the background.

Reason: This will make it easier for the users to recognize the buttons.

Images: The button styling is not intuitive.

5. **Problem: Non-intuitive Images in "Track your dinner" page**

User Study: 6 out of 10 people we interviewed faced this issue.

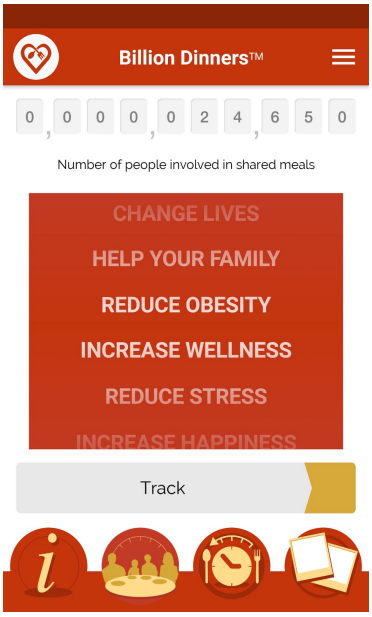
Reason: In the home page of tracking dinners the application just shows some numbers, text, a big advertisement like box and a track button. Here when the user selects a task the application does not inform the user anywhere what he is supposed to do in the page or where he is now. The track my dinner task has very confusing home page which clearly does not help user understand where he is in the system.

Heuristic Principle supporting it: Visibility of system status

Severity: 3

Design solution: Use of proper headers and message box during the loading of the app informing users, that this is what the next screen does.

Reason: This will make the app more intuitive for the users.



Images: The number on the top as well as the image below that is non interactive. The image keeps scrolling by itself, which makes it seem meaningful and interactive and hence confuses the user.

6. **Problem: Preload Button**

User Study: 6 out of 10 people we interviewed faced this issue.

Reason: There is no intuitive method to this page. The button on the homepage displays the money in the preload account, and it isn't intuitive that it leads to the preload page. Also, there is no option for the user to select the amount of money he would like to input, only options of $25, $50 and $100.

Heuristic Principle supporting it: User Control and Freedom

Severity: 3

Design solution: Create a explicit button for this page. Also, include this in the hamburger menu. Aso, add an option for the user to enter the amount of money he would like to preload.

Reason: This will improve the navigation of the app, make it user-friendly and make it easier to reach this page.

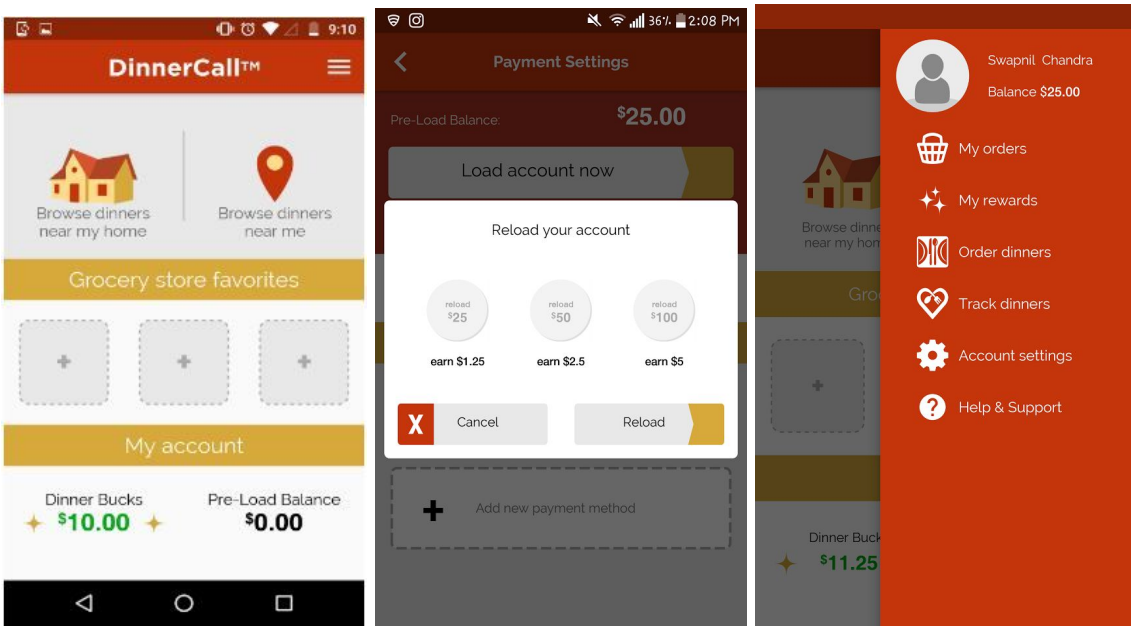


Image left to right: The text in the bottom "Pre-load balance" is the only button to the Preload page; The app gives only 3 options of amount of money for the user to load ($25, $50, $100); There is no preload option in the hamburger menu

7. **Problem: Ordering food design**

User Study: 5 out of 10 people we interviewed faced this issue.

Reason: The food preparation date is not made clear which can be easily mistaken by the user. Also, there are too many pages a user must go through before arriving at the payment page making it an unnecessarily lengthy process.

Heuristic Principle supporting it: Match between system and the real world

Severity: 2

Design solution: Begin with asking the user the date, then display the meals and condense the multiple pages to 1-2 pages. They should add details such as name, address, and phone number of the restaurant as well.

Reason: Increases the clarity and makes the process faster.

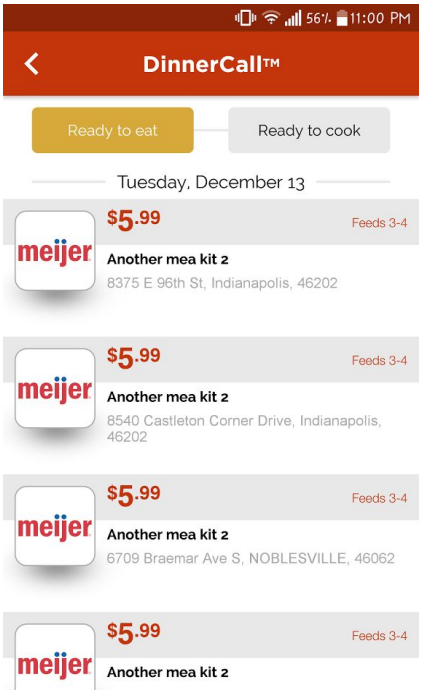


Image: The meal ordering page emphasizing on the price of the item, rather than the date, item name or the place

8. **Problem: Non-interactive buttons on the home screen**

User Study: 3 out of 10 people we interviewed faced this issue.

Reason: The non interactive buttons confused the users since they seemed clickable but lacked functionality.

Heuristic Principle supporting it: User Control and Freedom

Severity: 2

Design solution: Remove the buttons from the home screen till they have their functionality.

Reason: This would not confuse the user when he uses the app. He wouldn't have non-interactive buttons to deal with.

Image: The buttons in the middle of the screen with "+" sign on them are non-interactive hence confusing.

9. **Problem: Profile picture is non-interactive**

User Study: 3 out of 10 people we interviewed faced this issue.

Reason: User's click on their profile picture in the hamburger menu, assuming it is linked to the "edit profile" page, which it isn't.

Heuristic Principle supporting it: Consistency and Standards

Severity: 2

Design solution: Link the profile picture to the "edit profile" page.

Reason: This will make navigation in the app more intuitive.

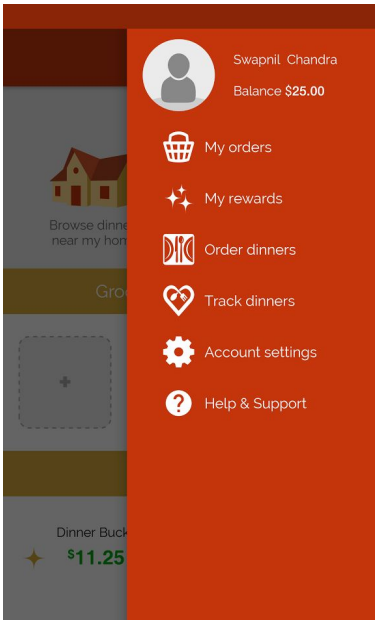


Image: The profile picture on the top of the hamburger menu is non-interactive hence confusing.

10. **Problem: Terminology used in the app**

User Study: 2 out of 10 people we interviewed faced this issue.

Reason: When the user selects a task the application does not inform the user anywhere what he is supposed to do in the page or where he is now. The track my dinner task has very confusing home page which clearly does not help user understand where he is in the system. The “visibility of the system” heuristic is clearly violated here.

Heuristic Principle supporting it: Match between system and the real world

Severity: 2

Design solution: Change the terminology to commonly used phrases like “book meal plan’s” or “Log your meals” instead of “Dinner made easy” or “Track your dinner” would be more informative.

Reason: This design solution would make it easier for the user to understand the functionality of the features because the names are intuitive.

Image: The terms Track family dinner instead of Log my meal and Dinner made easy instead of Book a meal are confusing and not common terminology.

11. **Problem: No contact us page**

User Study: 2 out of 10 people we interviewed faced this issue.

Reason: There is no page on the app for the user to contact the creator or no help for the user if he has any doubts.

Heuristic Principle supporting it: Help and documentation

Severity: 2

Design solution: Create a page for FAQs and contact us.

Reason: This aid the user if he needs help in using the application.

6. LIMITATIONS

Although the team was able to identify many of the issues that could be re-designed to provide a better user experience within the application, we did run into a few limitations, one of which was a major technical limitation which required rewriting some of the test plan days before the first usability test was to take place. The major technical limitation we faced was:

- Users could not view items that were ready for order. The team altered Task 1 to account for the limitation.

The team also encountered a number of smaller limitations during testing:

1. Testing was conducted using two devices
    a. iPhone for Task 1
    b. Android for Tasks 2 & 3
2. Users could not complete payments due to software limitation
3. Lack of observation data from users testing with a phone in hand, opposed to screen capture
4. Recording micro-interactions was cumbersome, which resulted in lack of user feedback recorded
5. Piloting the test helped identify some issues in the protocol,unfortunately other issues were found during testing (Example Task 3)

Due to the sheer number of limitations encountered, the team believes some of the results of the tests may have been skewed. These results may have been affected by the application not being supported in the Indianapolis area, which caused many of our targeted users to be unfamiliar with the grocers from which they were ordering meals. We also found there to be a handful of limitations in the DinnerCall application which made certain elements of the interface untestable. The team also believes that the Time-on-Task for Task 2 would have been much lower had the users been able to use the same device for all of the tasks. Although the team faced many limitations we still believe the usability testing was successful and that our recommendations would improve the overall impression and use of the application.

7. CONCLUSION

Our main aim of this project was to conduct an indepth study of an application and after taking into consideration the user studies and individual evaluations, carefully list down our recommendations.
These recommendations are a result of extensive user study, with about 20 interviews and observations in all, along with a thorough study of the Jakob Nielsen's 10 general principles for interaction design.
During our final user study, the team aimed to answer all of the research questions posed in the Test Protocol. The most compelling information was tied to the question, "Was it easy for users to order the dinner they wanted?", since this is the main aim of the application.
In conclusion, we would like to mention the major changes the team highly recommends for the DinnerCall application.

- Time-picker should be re-designed to reduce the amount of time it takes the user to select their prefered time
  “Average user took 36 seconds to select the time the prefered”
- Back Button needs to be implemented
  “7 of 10 users accidentally closed the application when they intended to navigate to the previous page”
- Buttons need consistent styling
  “Even with major differences in smartphone usage, both student and parent users struggled to know what was intractable and what was static”

With the changes in the design, this application will be successfully more intuitive and user friendly. These changes aim towards increasing the popularity of the application since any user will be able to use this app effortlessly.

APPENDIX

APPENDIX - A: TEST PLAN

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Overall Objectives of the Study

Previous usability studies of the DinnerCall mobile application made us realise that the users might face some problems while performing the main tasks of the application. Our objective with this study hence is to identify issues that a user may face while performing these tasks and understand how they use this application. Further this usability study will help us assess the overall performance of the application and get measurable results. Following are the main goals of our study:

- Identify the issues faced by the users while using DinnerCall mobile application
- Assess the user's understanding of the application while they are using it
- Create a repeatable usability study protocol

Research Questions

Through our testing, we will answer the following questions:

- Did the user easily understand what is clickable in the application?
- Was it easy for the users to order the dinner they wanted?
- How long did the user take to set the meal delivery time?
- How long did the user take to track his dinner?
- Did the user understand the task and it's use?

At the end of the sessions we will have the following quantitative data:

- Which buttons were not understood by the users; we will know this by the user comments during the think aloud and observation
- Which tasks were not understood by the users; we will know this by the user comments during the think aloud and observation
- The time the user took to perform a certain task; we will know this by measuring the time with use of stop watch while noting the end and start point of the timer
- The time the user took to set the delivery time; we will know this by measuring the time with use of stop watch while noting the end and start point of the timer

Also, we will have the following qualitative data:

- The verbal response: the think aloud commentary of the participants will give us what the users thought of the tasks, what they did not understand and where they were confused
- The interview response: will give us feedback on the overall experience of the users and what specific issues they faced

Types of Data Collected

Quantitative	Measure
Data Type	
Task ease of completion (Likert)	1 (Extremely Hard) - 7 (Extremely Easy)
Timing (Stop watch)	mm:ss (Minutes and Seconds)
Task completion	Success, Partial Success, or Fail
Basic demographics	Multiple choice responses

Qualitative	Type
Data Type	
Video Recording the actions	Using Video or Audio
User comments	Written or Verbal; Recorded and/or Noted
Notes	Notes gained during task execution

Test Environment and Location

The tests will be conducted in a controlled setting as we need to have enough room for a camera and enough chairs for the users to sit and perform the tasks comfortably without intrusion. The location of this study will be user labs available in the IUPUI university library. The environment will include a table for the user and two chairs, one each for the participant and the observer. Only one team member will take observational notes during the tests and other will take the interview afterwards during a session. This observer will sit at a two feet distance from the user for the observation notes and so that he can listen to the user comments during the think aloud. Participants will be using an android mobile device with internet provided by us. The test will be recorded by a camera setup at an angle such that it records user's face and hands while he holds the android device. We will also record the think aloud and after task completion interview with help of a digital voice recorder as a back up.
Also, owing to the availability and comfort of the users we will conduct these tests in three different sessions. These tests will be conducted only after the users sign the consent form provided by our team member before the start of the study.

Recruiting Participants

Characteristic	Desired Number of Participants
Participant Type	
Pilot	2
Regular	10
Total Number of Participants	12
Sex	
Male	6
Female	6
Has Children	
Yes (Parents)	6
No (students)	6
Age	
19-24	2
25-35	6
35-50	4
Work	
Full time or parents	8
Student or hourly	4

Above participants are so distributed so as to cover wide age range of parents and students

We will exclude people who:

- Work in the food or grocery industry
- Are not dinner decision makers (for example, children living at home)
- Do not own a smartphone

Methodology

This usability study will be exploratory and focus on way the tasks are performed by the users while noting the issues faced by them. Participants will fall into two groups depending on our two user demographics of parents and students. We will collect data about difficulty level of the understanding of individual tasks as well as qualitative data about participants' experiences using the site.

We will use a within-subjects design:
In this within-subjects design study, each participant will work through all four tasks in a counterbalanced order. We will conduct up to 10 individual 36-minute usability study sessions. Each participant will start with one of four major tasks in the DinnerCall application first, and then depending on the counterbalanced order complete the following three tasks. We will use first 10 minutes of each session to explain the overall session to the participant, review basic background information with the participant, give him the android smartphone to test on, hand out a slip of paper to be filled by the participant during the performance of the task and get a signed consent form. The next 2 mins we will explain the first task followed by 5 mins of participant performing the task. The second task will be performed in 5 mins after a 2 mins of debriefing for the same, and this will happen one more times completing a total of three tasks. Thus, a total of 40 mins will be spent on four tasks and their debriefing. The last 10 mins will be spent on conducting a post test debriefing interview and get overall feedback from the participant.

Session outline and timing :
The test sessions will be 36 minutes long. We will use 15 mins out of this time for the pre and post debriefing session with the participant and these sessions will take place in a controlled setting in IUPUI library.

1. **Pre-test arrangements (10 minutes):**
    - Explaining the session and it's importance to the participants
    - Review and sign the consent forms and get permission for recording from the participant
    - Getting background information of the participant
    - Telling participant to think aloud
    - Giving an android smartphone
    - Handing out paper slip to fill

2. **Tasks (21 minutes):**
    - Debrief the first task to the participant
    - Participant will start with the respective task and fill the paper slip provided
    - Continue with the next three tasks similarly
    - Observer will take notes during this and record it with participant's permission

3. **Post-test debriefing (5 minutes):**
    - Interview participant to get overall qualitative and quantitative data
    - Get feedback and follow up on the responses
    - Thank the participants for their time

Metrics

The team will answer the following research questions by performing the usability tests:

- Did the user easily understand what is clickable in the application?
- Was it easy for the users to order the dinner they wanted?
- How long did the user take to set the meal delivery time?
- How long did the user take to track his dinner?
- Did the user understand the task and it's use?

The quantitative and qualitative data sets that will help answer the research questions above:

Performance Data

- Time on task
- Easy of use - Likert Scale
- Task Completion (Success, Partial Success, and Fail)

Preference Data

- User Quotes
- Post-Questionnaire responses
- Ease of use using likert scale
- Ability to comprehend button styling and labels using open ended questions, video recordings and observational notes

Project Schedule and Timeline

Meetings:
#1 Kickoff: In this meet, we discussed about how we will choose our participants, how many participants we will choose and who will be in charge of the which interviews.
#2 Project Test Plan: In our next meeting, we discussed the tasks we will be focussing on and what the tasks will include. After deciding this, we discussed the report deliverables and the test plan.

Test plan, session script and materials:
After the test plan is designed and completed, we will focus on writing the session script and decide on the data collecting materials which will aid us during our interview sessions. We aim to finalize on a script that will be common for all participants and will ask the right questions in order to bring about the maximum user feedback from the participants.

We plan to ask each participant to perform all the tasks in the same test environment with the same session script and observe the reactions and user interactions of each participant. This will maintain consistency in the interview sessions and provide us with the statistics of the degree of unusability of different problems by the number of participants having trouble with. This could help us plan our design and prioritize our tasks to make the application more intuitive and user friendly.

Moderator Role:
As the moderator, we plan to conduct the interview in the most comfortable manner for the participant. We will let the participant interact with the application UI and observe their views about the tasks. We will begin by getting acquainted with the participant and making them feel comfortable about the session. Once the session is in progress, we will impartially guide them throughout the interview and answer any questions they have. We will record the views by taking notes and if the participant consents, by an audio-visual recording. This would help us study the session in detail if we missed anything in the notes.
Throughout the session, we will use our script to interact with the participant, however owing to the different approaches of people towards a certain UI, we would maybe ask follow up questions which aren't in the script if required.
Playing a neutral moderator's role will provide us with a chance to understand how a user will interact with the application and the problems he faces. We would encourage the participant to voice out their opinions as much as possible for them.

Reviewing, tabulating, and analyzing data:
While we interview the participants we will be taking notes of all their inputs as well as recording them if they consent. This will provide us with sufficient data to analyze on and

back up decisions about prioritizing tasks and re designing the application to better suit the needs of the users.

Project Timeline:

Task	**Date Assigned**
#1 Kickoff Meet: - Interview Details - Participant Details	1st November
#2 Project Test Plan Meet: - Decided the tasks for the interviews - Report Deliverables - Test Plan	4th November
Create the Test Plan Report	4th-7th November
Deliver Test Plan	7th November
Pilot Interviews	7th November
Recruit Participants	7th November
Conduct Regular Interviews	7th-14 November
#3 Interview Report Meet - Discuss findings - Draw Statistics about findings - Create a rough design of the app - Discuss the parts of the app that need to fixed based on the feedback	12th November
Create the Interview Report	12th-14th November
Deliver the interview Report	14th November

The above dates and tasks have been planned according to the current situation and are subject to change if needed.

Tasks

We plan to observe each participant performing four tasks. All participants will be given access to the DinnerCall Mobile application and will be encouraged to interact with it. During their interaction, they would be asked to perform the four tasks. The four tasks being:

1. Ordering a dinner
   For this task, the participant would be asked to browse the meal options and choose a meal. The participant would be asked to think aloud and express their thoughts throughout the task.

2. Preload Money
   In this task, they would be asked to go through the task of loading money into their account on the DinnerCall application. They would be asked to think aloud and express their thoughts throughout the task.

3. Tracking a Dinner
   The next task would be to track their dinner. The participant would be asked to set a timer and get a feel of what it would be like to document the dinner along with interacting with the functionalities of this application. The participant would be asked to think aloud and express their thoughts throughout the task.

Observing the participant interact with the application would help us understand the needs of the users and how they would see the application. Listening to their thoughts and comments while they perform the tasks along with observing their clicks on the screens will be useful while we redesign the application. Their inputs will provide us with a better understanding of the application and hence they will be extremely helpful towards making the application and its tasks user friendly and intuitive.

Deliverables

- This document, a test plan describing our overall objectives, research questions, participant recruitment approach, methodology, tasks, list of deliverables
- Final copy of pre-questionnaire for the test
- A final copy of the test protocol, including the informed consent form
- A final written report containing our findings, analysis, and visualizations of data

APPENDIX - B: TEST PROTOCOL

Preparing for the Sessions

To prepare for the usability testing sessions, the team will

- Download and install the DinnerCall Application on an Android smartphone for the participants to use
- Distribute copies of the test protocol, participant list
- Review Test Plan with team and adjust the plan as necessary

Before each test

- Ensure the smartphone is running the development application, so that payments can be made using a fake credit card
- Gather signed informed consent forms from each of the participants
- Setup the smartphone to the starting point for the usability test

After each test

- Reset the smartphone to its start state
- Record any issues or comments made by the participants
- Debrief with rest of team to record similarities and differences each member ran into during the usability test

Data Measures

Quantitative Data

- Time on task
- Task ease-of-completion
- Number of successfully completed tasks, partially completed tasks, and failed tasks
- Number of tests performed

Qualitative Data

- User Quotes
- “Think aloud” verbal script
- “Think aloud” recorded audio
- Post Questionnaire responses
- User Demographic information

Session Introduction

“Thank you for agreeing to participate in a usability test on the Dinner Call application. My name is [TRANSCRIBER], and this [PROCTOR- GUIDES THE TEST]. Have you signed a consent form? (If not, hand the user an informed consent form to review and sign.)

We are here today to conduct testing with the Dinner Call application that recently launched in the Google Play Store. Our goal is to identify how the users use the application and identify an issues that they may run into.

For the remainder of our time today we will be working from a script to ensure that we give every participant the same instructions.

During today's session, we will ask you to use the application and complete a variety of tasks. We will be observing you while you complete the tasks in order to gather points of pain, as well as points that felt very natural. We ask you to think out loud while completing tasks, there are NO wrong answers. By thinking out loud we can better gauge what works in the application and what causes you issues.

I will read each task out loud ensure you understand and then when you are ready to complete the task I will hand you a slip of paper with the task on it. At this point we will begin recording the time it takes you to complete the task. If you have any questions we will do our best to answer your questions without giving you the solution directly. After you are done, you will vote how easy or difficult it was to complete the task and provide any additional information you'd like before we move to the next task.

This test is meant to be low stress and at any point if you feel uncomfortable and wish to take a break or end the test, feel free to do so. Our goal is to test the application and not you individually.

We wish to stay transparent, but we would like to mention that our team did not design the application you will be testing today. We ask you to be honest in your feedback - in order for the team to gather your true feelings we need to hear exactly what you believe, not what you believe we want to hear.

The usability test will take roughly 30 minutes to complete. Do you have any questions before we get started? (Answer any questions)

Brief about the Application:

DinnerCall is a mobile application that provides you the ability to browse and order meals offered from nearby grocery stores. You can select a meal and schedule pickup of your meal, and the grocery store will prepare your food and have it waiting for you when you arrive.

DinnerCall also has a social mission: they want to recruit participants in their Billion Dinners movement, a project that seeks to log a billion family dinners around the world and encourage family mealtime over fast food dining. As such, the application also serves as the central hub for logging of family dinners and as an information center for their social mission.

Pre Questionnaire

1) Age:
2) Occupation:
3) Family Structure:
4) Number of family dinners in a week:
5) Number of “Eat-Out” meals in a week:
6) How often do you use your smartphone in a day?
7) What applications do you use most frequently on your smartphone?

Tasks

Start Time: _____

1) Your *family of four* is in the mood for dinner. Order a *Southern Shrimp Scampi* from the Meijer located at *6709 Braemar Ave S, NOBLESVILLE, 46062* for pick-up at *7 P.M.* tonight.

Credit Card Information
Card Number: 4242424242424242
CVV: 125
Expiration Date: 01/20
ZIP Code: 46032

How easy or difficult did you find the previous task? (Circle your response)

1	2	3	4	5

Difficult Easy

Comments:

End Time: _____

Start Time: _____

2) You are required to preload your account balance to take advantage of the DinnerBucks feature. Preload $50 into your DinnerCall Account using the following credit card information:

Required Data
Card Number: 4242-4242-4242-4242
CVV: 125
Expiration Date: 01/20
ZIP Code: 46032

How easy or difficult did you find the previous task? (Circle your response)

1	2	3	4	5

Difficult Easy

Comments:

End Time: _____

Start Time: _____

3) Track the 45 minute dinner you ate with your two family members yesterday, include one photo. Share it on your Twitter. (We have preloaded a social media account to post the details of the meal.) (Username: Team3_User, Password: iupuiTeam3)

How easy or difficult did you find the previous task? (Circle your response)

1	2	3	4	5

Difficult Easy

Comments:

End Time: _____

Post Questionnaire

1. How easy was it for you to use the DinnerCall application? (Circle your response)

1	2	3	4	5

Difficult Easy

2. The primary objective of the application was clear... (Circle your response)

1	2	3	4	5

Not Clear Very Clear

3. I enjoyed using the application to order food... (Circle your response)

1	2	3	4	5

Strongly Disagree Strongly Agree

4. I would use DinnerCall for my meal preparation... (Circle your response)

1	2	3	4	5

Strongly Disagree Strongly Agree

5. Would you prefer the ability to purchase more than one meal in a single order?

Comments:

Informed Consent

The is conducting research to evaluate the usability of the Dinner Call Application for its primary and secondary users. We will use the results of these sessions to suggest changes to improve the usability of the application.

If you agree to participate, you will be asked to use the mobile application in the presence of a researcher and share your thoughts and insights as you use it.

In today's session, you will

- Complete the set of tasks given by the moderator
- Be interviewed by the moderator about using the application
- Complete a brief questionnaire and interview about your overall experience.

Your participation today will take approximately 30 minutes. There is no risk to you if you participate in this study. We will use the information that you provide, along with information from other participants, to improve the overall usability of the application.

Any information you share will be kept confidential; all collected data will be anonymized at the conclusion of your participation today. Your privacy will be protected to the maximum extent allowable by law.

Your participation is completely voluntary. You may choose not to participate at all, may refuse to participate in certain procedures or answer certain questions, or may discontinue your participation at any time without penalty. Your decision to participate will not affect your relationship with any local, state, or Federal organizations, or the person who identified you as a potential participant. Agreeing to participate and signing this form does not waive any of your legal rights.

If you have any questions about this study, please contact: HCI Team 3 in the IUPUI Graduate Program by email: dsonay@iu.umail.edu, swapchan@umail.iu.edu, smith589@umail.iu.edu, dishbora@umail.iu.edu

If you voluntarily agree to participate in this research, and have had all your questions answered, please sign below.

_____ _____

Participant's Signature Date