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Time-On-Task Usability Final Report

Introduction

In a world of instant gratification, food-delivery applications have become the norm for many hungry customers looking for their next meal. The ability to order a meal at their fingertips from their homes is very appealing to many who may need more time to drive to a fast food restaurant. The ease with which these applications are used plays a very important part in people's decisions about which applications they use for ordering food. Another important aspect of the food-delivery application is the immediate reviews people can leave. Beforehand, any feedback would have to be made to either a manager, a review card, or a direct call to a support line. Now, mobile applications allow users to leave reviews for each order that they have placed as soon as it is completed.

In this report, our research group is looking at the time it takes for someone to create an account from the McDonald's phone application and UberEats phone application as well as order a meal/food from these respective ordering apps. The study will use self-reporting time assessments as well as an expectation rating (ER) to see how easy or complicated the ordering process was. Gathering this information will help bring insight into the issues that the average user might experience when utilizing a food-ordering application. The Expectation Rating will also bring into consideration the relationship between a user's expectation of the experience and the execution of that experience. This report will contain sections on the methodology, raw data, statistical analysis, reflections on the process as well as the conclusions that were derived from the analysis.

Methods

Test Design

Task Description: Participants will be tasked with creating an account and from there, ordering a meal from both the McDonald's mobile app and the UberEats mobile app. The goal is to

measure the time and Expectation Rating it takes for users to complete the creating an account and the order process on both mobile phone applications. There were 30 participants in our sample who were college students ranging from the ages 18-35 years old. They were recruited through nonprobability sampling methods, convenience, and snowball sampling. The study employed a combination of in-person and online user testing methods to comprehensively evaluate the user experience of the McDonald's and Uber Eats applications. The in-person testing was conducted in a controlled environment, while online testing allowed for a broader participant pool. For in-person testing, participants were observed as they interacted with the applications on their smartphones. The sessions were recorded to capture both explicit and implicit user behaviors, providing valuable insights into the user interface and interaction patterns. The data for this can be found here: user recordings/data collection.

Participants were selected to represent a broad spectrum of users, including different age groups, technological backgrounds, and familiarity with food-delivery applications. In-person testing involved a smaller group to facilitate detailed observation and interaction, while online testing included a larger and more diverse sample size. Several metrics were employed to measure the efficiency and user satisfaction during the testing process. Time-related metrics, such as the duration to create an account and complete an order, were recorded. Additionally, the Expectation Rating (ER) was used, where participants rated their anticipated user experience against the actual experience.

The study embraced device diversity by testing applications on various devices, including the latest smartphones commonly used by the target audience. This approach aimed to assess the applications' adaptability across different screen sizes and resolutions, ensuring a full evaluation of the user experience on diverse platforms.

Task Scenario:

Imagine you are at home, feeling hungry and craving a delicious meal from McDonald's. You want to eat a lot of food. You have heard about the convenience of using the McDonald's mobile app for ordering food, so you decide to give it a try. Additionally, you're curious about the experience of using Uber Eats, another popular food delivery app.

For the first part of the task, your goal is to create an account on the McDonald's mobile app. Pretend this is your first time using the app, and you need to set up an account with your personal information. Once your account is set up, proceed to the second part of the task –

ordering a meal for delivery, or pick up if you do not want to interact with anyone, curbside or drive-thru is an option! Browse through the menu, select your favorite items, customize your order as needed, and complete the entire ordering process. Again, share your thoughts on the ease of navigation and user experience during the order placement.

After completing both tasks on the McDonald's app, repeat the process with the UberEats app. Create an account, then order a meal from a restaurant of your choice. Throughout the entire process, pay attention to the time it takes you to complete each step, from account creation to finalizing your order. Additionally, rate your expectations before starting each task and evaluate whether the experience met, exceeded, or fell short of those expectations.

Instructions for said tasks are presented below:

Instructions for Creating an Account on the McDonald's App:

1. Open the McDonald's app (Agree with Terms & Conditions for first-time users)
    a. Press More
2. Press "Sign in" and select what to continue login with (Apple, Facebook, Google, Email)
    a. Either create a new account or log in if you already have one.
    b. This generally involves providing your email address, creating a password, and entering some personal information.
    c. Option to join MyMcdonald's Rewards & Deals
3. Allow the app to access your location "while using the app" or manually enter your address.

Instructions for Ordering on the McDonald's App:

1. Explore the menu by browsing through different categories
2. Select the items you want to order (Add quantity)
3. Customize them based on your preferences.
    a. For example, you may be able to add or remove ingredients, choose the size of your meal, or modify condiments.
4. Add the items to your bag.
    a. The app will typically show you a summary of your order, including the total cost.
5. Press Check out Now or the bag
    a. Confirm your delivery or pickup details, including your address and payment information.
    b. Press "Review & Pay"
6. Pick up how you want
    a. Table Service, Counter, Drive Thru, or curbside

Instructions for Creating an account on the UberEats app:

1. Download the Uber Eats: Food Delivery app
2. Click continue once the app is launched
3. Enter your phone number or click continue with (application)
4. Complete the sign-in process for the desired method
5. Click "Share your location"
6. Enable or disable push notifications
7. Skip joining Uber One

Instructions for Ordering on the UberEats app:

1. Search or find Uber Eats on your device
2. Search for McDonald's
3. Select a location
4. Select the items that you want to order
5. Add the items to your cart

6. Click View Cart
7. Click Go to checkout
8. Enter your location for delivery
9. Add a payment option
10. Select your delivery option (priority or standard)

Findings

The first task was to measure and compare the time it takes for a user to create an account on the McDonald's application and the time it takes for a user to create an account on a 3rd party ordering application, in this case, UberEats. Based on the user data that was gathered, we learned that users found the task of creating an account easier to accomplish on the McDonald's app easier compared to the UberEats app. Below you will find that the average time it took users to create an account for Mcdonalds (*Figure 1: Table A*) was 65.13 seconds. Compared to the UberEats (*Figure 1: Table B*) where it took users an average of 67.2 seconds to create an account.

Mcdonalds Account Registration	
Time on Task (SEC)	ER Score
38	1
39	1
45	1
50	1
57	1
82	1
85	1
128	1
49	1.5
49	1.5
34	2
46	2
47	2
64	2
86	2
107	2
109	2
19	2.5
27	2.5
49	2.5
104	2.5
36	3
70	3
60	3.5
100	3.5
43	4
57	4.5
57	5
77	5.5
140	5.5
Mean Time on task (sec):	Mean ER score:
65.13333333	2.416666667

Table 1: Figure A

UberEats Account Registration	
Time on Task (SEC)	ER Score
44	1
63	1
64	1
103	1
120	1
201	1
21	1.5
55	1.5
56	1.5
58	1.5
67	1.5
121	1.5
154	1.5
31	2
35	2
43	2
49	2
54	2
75	2
38	2.5
57	2.5
32	3
81	3
51	3
46	3.5
64	3.5
51	4
55	4
50	4.5
77	5.5
Mean Time on task (in sec):	Mean ER score:
67.2	2.25

Table 1: Figure B

Users then had to rate the overall complexity of the task on a scale of 1 to 7, 1 being the easiest and 7 being the most difficult. After gathering data from all users who created an account, it was discovered that users found the process/task experience for creating an account on Uber to be slightly easier than that of McDonald's. Mcdonald's Expectation Rating (ER) average was 2.41 (*Table 2: Figure A*). And Uber's was slightly lower with an average of 2.25 (*Table 2: Figure B*).

ER Score
1
1
1
1
1
1
1
1
1.5
1.5
2
2
2
2
2
2
2
2.5
2.5
2.5
2.5
3
3
3.5
3.5
4
4.5
5
5.5
5.5

Mean ER score:
2.416666667

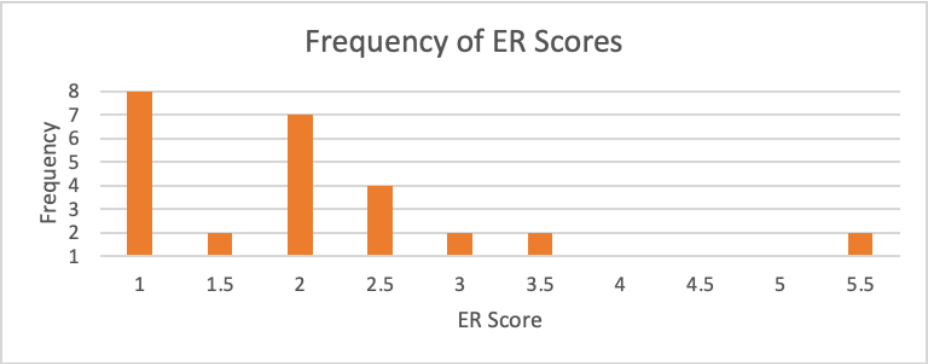


Table 2: Figure A - Each User's ER (Expectation Rating) Score for McDonald's account creation. The bar graph is a visual representation of the frequency of each ER Score.

ER Score
1
1
1
1
1
1
1.5
1.5
1.5
1.5
1.5
1.5
1.5
2
2
2
2
2
2
2.5
2.5
3
3
3
3.5
3.5
4
4
4.5
5.5
Mean ER score:
2.25

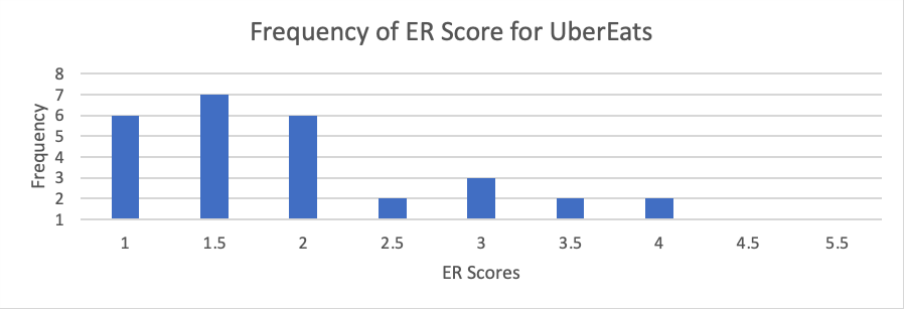


Table 2: Figure B - Each User's ER (Expectation Rating) Score for UberEats's account creation. The bar graph is a visual representation of the frequency of each ER Score.

Then a two-sample T-test was used to compare the time on task for McDonald's and Uber Eats app account registration.

t-Test: Two-Sample Assuming Unequal Variances

	A	*B*
Mean	65.1333333	67.2
Variance	927.085057	1478.303
Observations	30	30
Hypothesized Mean Difference	0	
df	55	
t Stat	-0.2308014	
P(T<=t) one-tail	0.40916275	
t Critical one-tail	1.67303397	
P(T<=t) two-tail	0.81832549	
t Critical two-tail	2.00404478	

Table 2: Figure C - A p-value of 0.818 tells us the probability that this difference between products A and B is due to chance is 81.8%, assuming there is no difference.

For the user's second task, they were asked to place an order on the same app they created an account on. They had the opportunity to choose any meal they wished. After task 2 completion we gathered the average time it took to place an order for each app (McDonald's and UberEats). For users placing an order via the McDonald's app (*Table 3:Figure A*), they averaged 84.16 seconds to place an order. However, users who placed an order on the UberEats app averaged a total of 101.43 seconds (*Table 3: Figure B*). Approximately a 15-second difference.

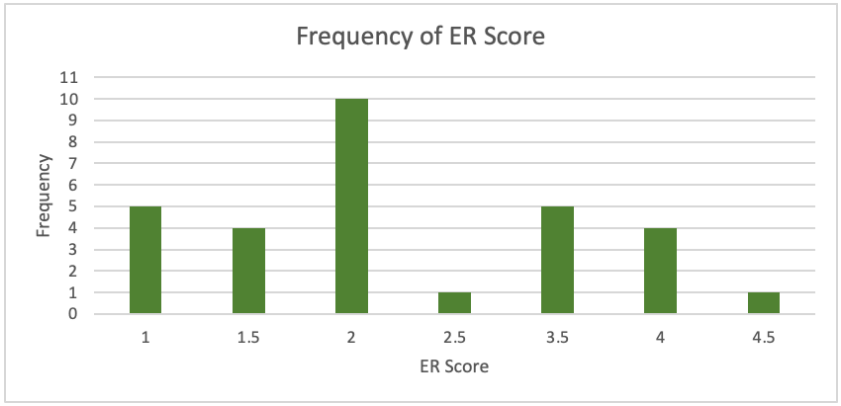
Mcdonalds App Order	
Time on Task (SEC)	ER Scores
49	1
60	1
61	1
131	1
149	1
73	1.5
88	1.5
111	1.5
33	2
34	2
45	2
52	2
64	2
71	2
152	2
41	2.5
88	2.5
105	2.5
138	2.5
144	2.5
150	2.5
31	3
48	3
98	3
45	3.5
105	3.5
60	4
62	4
113	4.5
124	4.5
Mean Time on task (sec):	**Mean ER score:**
84.16666667	**2.383333333**

Table 3: Figure A
The number of seconds each user took to complete the ordering process for ***McDonald*** *and their rating of the overall difficulty.*

UberEats App Order	
Time on Task (SEC)	ER Score
44	1
81	1
82	1
93	1
183	1
15	1.5
58	1.5
115	1.5
184	1.5
64	2
71	2
76	2
92	2
130	2
151	2
158	2
173	2
196	2
272	2
111	2.5
27	3.5
63	3.5
66	3.5
74	3.5
75	3.5
63	4
69	4
88	4
91	4
78	4.5
Mean Time on task (in sec):	**Mean ER score:**
101.4333333	**2.383333333**

Table 3: Figure B
The number of seconds each user took to complete the ordering process for ***UberEats*** *and their ratings of the overall difficulty of the task.*

Similar to the first task, users were then instructed to rate their overall experience and/or difficulty of the task they were asked to complete. By surprise, both applications' outcome was the exact same. They both averaged an expectation rating of 2.383. Table 4 Figures A and B show a visual representation of the number of users who rated each score, 1 being the easiest and 7 being the most difficult.



Mean ER score:
2.383333333

Table 4: Figure A

Visual representation of the number of users who rated each ER for the ***UberEats*** *ordering experience.*

Mean ER score:
2.383333333

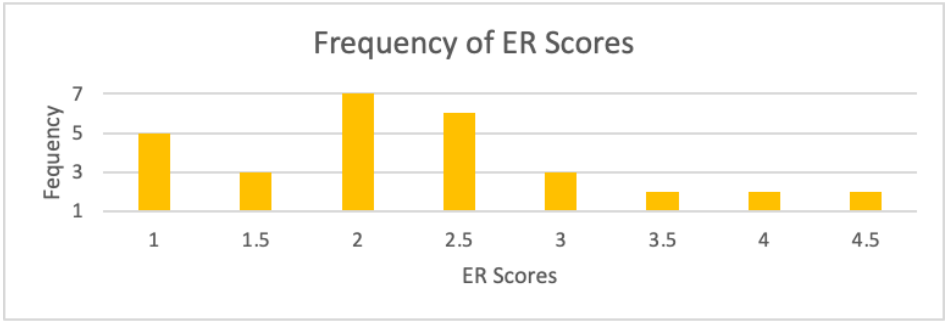


Table 4: Figure B

Visual representation of the number of users who rated each ER for the ***McDonald's*** *ordering experience.*

Then a two-sample T-test was used to compare the time on task for McDonald's and Uber Eats app ordering tasks.

t-Test: Two-Sample Assuming Unequal Variances		
	A	*B*
Mean	84.1666667	101.4333
Variance	1565.86782	3208.737
Observations	30	30
Hypothesized Mean Difference	0	
df	52	
t Stat	-1.3686753	
P(T<=t) one-tail	0.08849243	
t Critical one-tail	1.67468915	
P(T<=t) two-tail	0.17698486	
t Critical two-tail	2.00664681	

Table 4: Figure C - *Table 4: Figure C* - A p-value of 0.176 tells us the probability that this difference between products A and B is due to chance is 17.6%, assuming there is no difference.

Discussion

The results of the statistical analysis led us to realize that there were definitely some improvements that could be made to the Uber Eats and McDonald's applications. Looking at the analysis in regards to the registration, even though there were minimal statistical differences, we can see that Uber Eats had a slightly better Expectation Rating than McDonald's. This was something that was unexpected because going through a third-party application usually leads to extra layers of complication. On the other hand, we see the reverse in the Expectation Rating in the ordering tasks. Ordering from Uber Eats ended up being significantly longer, something we were expecting. Again, having layers of obfuscation most likely led to people taking more time to make their orders. Going through a different application definitely adds some confusion to people's expectations of how to order a meal. It would probably be a great source of research to see whether or not people would get used to using Uber Eats to order meals over time. The appeal is the consistency with which someone can order through Uber Eats. They don't have to learn a new GUI every time they try to order from a new restaurant so it allows people to look at the same one and not be confused about where things are. One of the things that could have been better for both applications was the simplicity of the menus. Sometimes, things were hidden or were under too many menu options. There could have been less complexity by making sure that the main focus of each application was just menu items, promotions, and checkout. Bright colors and obvious signs would help people, especially those unfamiliar with mobile food applications. The faster the ordering process, the less likely people are to end up frustrated and switch applications or resort to ordering through the phone or going in person. One of the most challenging aspects of figuring out what to change and to what extent are the vast differences between people's opinions on what makes good design and what doesn't. What might be considered a positive feature by one user could be perceived negatively by another user.

Limitations

Our study faced several constraints that impacted the reliability and generalizability of our findings. The tight timeline for this project, limited to less than 30 days, restricted our ability to gather a more extensive sample size. With a larger time frame, we could potentially sample more than 30 participants, enhancing the statistical power of our study. The small sample size of 30 participants raises concerns about the statistical significance of our findings and limits the representativeness of the study's applicability to a broader population.

In the “participant recruitment” phase, our group encountered challenges, particularly in finding individuals who did not already have the McDonald's and Uber Eats applications installed or an existing login account. This limitation could introduce selection bias, as those who volunteered may differ in motivations and expectations from the broader user base.

The study was conducted in a controlled environment, potentially influencing participant behavior compared to real-world scenarios. This controlled setting, akin to ethnographic observations, may not fully capture users' authentic interactions, impacting the study's ecological validity. Participants were aware of being observed, introducing an observer effect that could influence their behavior during the study. This awareness might have affected their natural interactions with the apps, potentially skewing the results.

Our research group focused narrowly on the account creation and ordering processes, overlooking potential issues in other areas of the apps that could influence the overall user experience. The study's short-term focus on usability aspects, such as time to complete tasks and initial user expectations, may not adequately capture long-term satisfaction or user adaptation to the current interface. Furthermore, the McDonald's and UberEats apps operate on different technological platforms, potentially introducing another variable that could impact the comparison between the two apps.

During data collection, external factors, such as noise or interruptions, may have affected participant focus and behavior, potentially influencing the results. Additionally, technical issues, including connectivity problems and app glitches, occurred, posing challenges to the overall user experience and introducing variability in the results.

To address these limitations in future studies, we recommend a more extensive and diverse participant pool, a consideration of naturalistic settings to enhance validity, incorporation of additional usability metrics, and a broader exploration of the apps beyond specific tasks. In a hypothetical redo of the study, efforts would be made to recruit a more representative sample, conduct the study in a more naturalistic setting, and include a broader range of tasks to assess overall app usability. Continuous data collection and feedback beyond the study period could provide insights into long-term user satisfaction. Additionally, addressing technical issues promptly during the study would be crucial to maintaining the reliability of the data.

Conclusion

In conclusion, this study involved the critical assessment of usability based on time on task and expectation ratings for both the McDonald's and Uber Eats applications. The task that the participants in our sample performed was creating accounts for the login authentication and ordering a fast food restaurant meal. Users nowadays rely on mobile applications for food delivery services so it is important to understand their expectations and the time they invest in doing these tasks. While both apps were shown to have good usability by our participants, there is still much more room for these food delivery apps to be easier to use. Although the McDonald's app was found to be slightly faster on average for account creation than the UberEats app, UberEats was rated easier to use. It was also found that it was much faster to order on the McDonald's App compared to the UberEats App, yet they were rated around equally easy to use. There were no significant differences in the time-on-task that were uncovered for either creation or ordering after our statistical analysis. Future research can build upon these findings to further enhance the usability and appeal of all food delivery apps. This would allow other food delivery services to be able to deliver a more satisfying and efficient user experience and user interface.