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Data Driven Design: Leveraging Data to Make Powerful Design Decisions

Obtaining Insights and Inferences from User Tests of Popular Cab Booking Apps

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Abstract: The paper contributes to the topic of Usability/ User Experience/ User Testing through Data Driven Design and how it helps to improvise the UX of an application through observation of the tests conducted with real users. The paper illustrates the target demographic used for the test which are users who have never used the cab booking app before, users who occasionally use the app and users who have been using the app frequently. The apps for this study are Uber and Ola and both users perform a certain task on both of the competitor's apps while they are being screen recorded. After the recording, the recorded tests are analysed and mapped to understand what problems did each user face and were others able to reproduce those problems. If reproduction was possible - the insight can then go through iterations in further designs to address that pain-point.

I. INTRODUCTION

Usability testing is a methodology in User Experience Design to understand pain-points in existing design of the app and improvise based on the observations made in the tests conducted with real users.

Usability means the software's capability to be learned and understood easily and how attractive it looks to the consumer.

These tests consist of certain tasks in an effort to measure the product's ease of use, work time and the user's perception of the experience (cite: ISSN 2320–088X). The participants are instructed to think aloud while they perform these tasks and justify their actions while they are screen-recorded. Usability testing thus, after careful study helps understand how the target demographic and users of the application think and the interactions they have with the application, which in turn improvises the User Experience once the design is iterated upon ease of use.

II. APP SELECTION

Given the fast paced lifestyle of people today and the amount of time they spend during commute in Mumbai, Uber and Ola as apps that people use most to book a cab and travel. Uber, especially has an extensive design and engineering team.[cite: https://www.linkedin.com/pulse/20140902142602-28522942-the-truth-about-what-it-s-like-working-for-uber] For such teams, it's easy to miss out on a few details due to a burnout here and there which can be discovered with usability testing which can eventually be a great source of feedback in the future iterations.

III. THE TASK

In a usability test, we provide every user with a task they need to perform so that testers can audit the recordings and point out insights based on their taps and thoughts. A task is based on the feature that one wants to perform testing on. In the case of cab booking apps, we tested the primary use-case of the app.

Book a cab from Point A (Current Location/ Source) to Point B (Destination).

To test other features and how users would discover them, we decided to add a few constraints and provide the user with a form of gratification. In order to make the user think more, we decided to test them based on constraints:

1. The user needs to travel with 2 more of their friends. (3 passengers)
2. The user has a limited amount of money which is not sufficient to travel from Point A to Point B with 3 passengers.

3. The user can get a coupon code which can discount the total amount to meet the deficit of cash provided to the user provided the user finds where to apply the coupon code and applies it.

IV. PREREQUISITES

We gather insights based on the finding from the recordings. In order to record the test subjects to gather insights based on i.e. users while using the application, we decided to use ADV Screen Recorder by ByteRev.
(https://play.google.com/store/apps/details?id=com.blogspot.byterevapps.lollipopscreenrecorder&hl=en) based on Jake Wharton's library Telecine. (https://github.com/JakeWharton/Telecine)

In order to conduct the test, the device used was a **Huawei Nexus 6P running Android Nougat 7.0** since to record the user's screens we had to have a device with the necessary apps installed and this was not possible on the actual device of the user.

The application gave us the advantage of screen recording with touches on using taps, voice recording and face recording. Ideally, these are all we would use to understand what the user is doing.
This test was conducted with random, unsuspicious individuals at a local meetup, courtesy of Mumbai Artificial Intelligence Meetup at Fractal Analytics (Mumbai AI Meetup) in December, 2016.

V. USER'S EXPERTISE

For the test, it was essential to have a mixed bag of users so that the common task was observed from different viewpoints. The test was conducted with 6 users out of which 5 were tested with both, Uber and Ola apps for their thoughts and patterns.
We decided to categorize based on their expertise of using each of the apps to book a cab. Users are divided in the following categories:

- User has never used the app before.
- User occasionally uses the app.
- User regularly uses the app.
- Unknown (User has used the app but the expertise isn't known)

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TABLE I. USER DISTRIBUTION

USER	EXPERTISE
U1	Used the app before. Frequency Unknown.
U2	Never used the app.
U3	Occasionally uses the app.
U4	Regularly uses the app.
U5	Occasionally uses the app.
U6	Never used the app.

a. A total of six users with different levels of expertise with cab booking apps.

Fig. 1. Example of a figure caption. *(figure caption)*

Following the test conducted with all the users with the pre-decided tasks and challenges/constraints, the whole team sits together in a meeting room to audit the recordings to understand the thought process of the user and the interactions the user has with the application to spot any potential insights or inferences along with errors committed by the testers.

VI. OBSERVATIONS

OBSERVATIONS BEFORE THE TEST

One of the early observations during a trial test with a peer, it became obvious that recording the user's face using the front camera can frighten them and lead to actions that otherwise wouldn't be made in the fright of being recorded and/or slow down their thinking process due to being self-aware of the recording of their face. However, the abnormal behavior could be avoided by not recording the face of the user and only capturing their voice and screen recordings to understand the thought process and the interactions.

Another observation was to specify the intent early to the user and get the task clear well before the recording has begun. It is extremely important to specify the goal to the user to ensure the user knows the priority of what is to be achieved and does not navigate aimlessly throughout the app. Without a clear

understanding, users would get lost in the process and unable to concentrate on the task when it is dictated by the tester.

Observation after the test

After all the tests were conducted and recorded – Saurabh, Nancy and I decided to audit these tests to spot insights and inferences by viewing these recordings on a television screen for accurate findings.

Insights

Observations made that help us understand a problem in the app and if it can be reproduced by users. If an insight can be reproduced multiple times, its a design problem and should be iterated upon to be fixed.

The following insights were discovered throughout the tests for all 6 users:

Uber:

- Clicks outside the Modal box to dismiss it.
- Delay in page loading leading to multiple clicks and hence errors
- Used location search
- Changes of location due to random moving of maps
- Couldn't apply coupon
- Don't know what is Uber-X/Go/Pool/Black

TABLE II. INSIGHTS FROM UBER USABILITY TEST

INSIGHTS	**USERS**					
	1	**2**	**3**	**4**	**5**	**6**
Clicks outside the modal box to dismiss it.	1					
Delay in page loading leading to multiple clicks and hence, errors.	1	0	1			
Used Location Search		0	1			
Change in location due to random movement in maps			1			
Couldn’t apply coupon code.			0	0	1	1
Don’t know what’s Uber X/Go/Pool/Black		1				1

Based on the above insights, we marked 1 for positive, 0 for negative and blank if the instance never occurred.

Ola:

- Used location search
- Changed the default from "OLA PRIME"
- Changes of location due to random moving of maps
- Could not apply coupon
- App not opening fast
- Sudden OLA select popup irritated it
- Could not find the Destination box
- Could not find estimate

TABLE III. INSIGHTS FROM OLA’S USABILITY TEST

INSIGHTS	**USERS**					
	1	**2**	**3**	**4**	**5**	**6**
Uses Location Search		1				
Changed the default from “OLA PRIME”		1				
Change of location due to random movement of maps		1				
Couldn’t apply coupon		1				
App taking time to open quickly		1				

INSIGHTS	USERS					
	1	**2**	**3**	**4**	**5**	**6**
Sudden Ola popup irritated user		1				
Couldn't find Destination box		1			1	
Couldn't find Estimate					1	

Based on the above insights, we marked 1 for positive, 0 for negative and blank if the instance never occurred.

Inferences

Inferences are a form of results which we obtain based on evidence and supporting artifacts, in this case the videos from user tests (available to view at: https://goo.gl/0G64H2) Based on the insights, we come up with inferences that could help solve multiple design problems if users could reproduce a pain-point.

The usability test was concluded with the following inferences along with which of the apps should implement these.

1. CTA for request Uber-Go/X more than 2 seats
2. Ride Estimate is a redundant step
3. Whenever lost, hit the back button
4. If the COUPON CODE is in CAPITALS, adapt the keyboard
5. Discounted cost isn't shown automatically
6. Uber - To get min. fare visit our website!
7. Showing estimates in fractions when in cash

TABLE IV. INFERENCES FOR BOTH APPS TO MAKE CHANGES

INFERENCES	APP
CTA for request Uber-Go/X more than 2 seats	UBER
Ride Estimate is a redundant step	OLA
Whenever lost, hit back button.	BOTH
If COUPON CODE is in CAPS, adapt the Keyboard	BOTH
Discounted cost isn't showed automatically.	UBER
Uber – to get min. fare, visit our website.	UBER
Show estimates in fractions when in cash	UBER

Based on the above inferences, we mapped the app that needs the changes or can use these inferences to their advantage.

Testing Mistakes

As Testers, there are mistakes we do when dictating or testing users. These mistakes can lead to the test results to differ. We documented one, so it is not repeated by other usability testers.

TABLE V. TESTING MISTAKES MAPPING

Testing Mistake	Video File Name	Time
Asking to get the ride estimate	2016_12_03_18_13_40.mp4	1:48

The mistakes we committed during the test are documented along with the timestamp of the video available here: https://goo.gl/0G64H2

Conclusion

From the various usability tests conducted with individuals of different levels of expertise, we can conclude that a few of the insights which we spotted can be reproduced with both the Uber and Ola apps. These insights are pain-points in the app that a beginner or intermediate user might have to tackle through the first few times of uses until they become an expert to use the application. The videos and affinity mapping of the tests can help designers to iterate on the designs which new and existing users had a problem with.

Furthermore, the iterated designs may have to go through usability testing again to understand how the users react to the updated designs in the app.

However, the users were not in their natural environment when these tests were conducted and knew that they were being recorded, there is no certainty that they would behave in a similar pattern in the actual environment and might have different results.

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References

[1] G. Eason, B. Noble, and I.N. Sneddon, "On certain integrals of Lipschitz-Hankel type involving products of Bessel functions," Phil. Trans. Roy. Soc. London, vol. A247, pp. 529-551, April 1955.

