INFO3315
Human-Computer Interaction
Project Phase 4

R16C – Group5

Group Members (SID):

470011746

460047977

490444409

1. Procedure of your Experiment

(a)

1. Add the starting point

   Participant should determine the exact the start location which is '4 Defries Ave, Zetland'.

2. Add the destination

   Participant should add 'The university of Sydney, Camperdown' as the destination.

3. Choose the transportation – Bus

   Participant should choose bus as the preferred transportation.

4. Start the navigation – Bus

   Participant should choose the route with the shortest time duration and start navigating.

5. Save the trip/ Put the trip in the bookmark

   Participant should save the trip in the 'Opal Travel' and save as bookmark in the prototype.

6. Choose the transportation – Drive

   Participant should choose drive as the preferred transportation with the same setting of starting point and destination.

7. Start the navigation – Drive

   Participant should choose the route with the shortest time duration and start navigating.

8. End the navigation

   Participant should end the navigation after successfully starting the navigation whatever the transportation is.

9. Search the bus information

   Participant should see the bus information including whether it is crowded or when it will arrive.

(e) This will be attached as 'CompleteForm.docx'. It contains the instruction of the whole experiment for experimenter, the order of remaining documents is PIS -> PCF -> Participant Background -> Trial -> Participant Feedback

(f)

- Tester: Jacky Experimenter: Michaela
- Difficult:

1. It takes time to read PIS and PCF carefully.
2. It is too hurried to be familiar with the system in 5 minutes.
3. The prototype cannot perform as realistic as the completed app.

-Change made:

1. Streamline the PCF.
2. Extend the time for familiar to 10 minutes.
3. Disorder the sequence of trials for different apps with the participant to ensure the fairness of the experiment.
4. Add a question in participant background to ensure that the participant has not used 'Opal Travel' before.

2. Conduct the experiment

3 users are tested in the experiment who are Mike Wu, Jiaxin Zhao and Yihao Din. Their original PCF, PIS, Participant and Trial forms are sperate because the tester will keep PIS form, PCF and Participant forms are completed by tester and Trial form is completed by experimenter.
There will be PIS.docx and Trial.docx for all participants and PCF_01.docx, PCF_02.docx, PCF_03.docx, Participant_01.docx, Participant_02.docx, Participant_03.docx for each participant.

(c) This will be attached as 'Data_Sheet.xlsx'.

3. Data analysis

(a) Mean (time, Opal Travel): 2.577 Mean (errors, Opal Travel): 3.333

Mean (time, Prototype): 2.297 Mean (errors, Prototype): 4.333

Standard Deviation (time, Opal Travel): 0.8664

Standard Deviation (errors, Opal Travel): 1.528

Standard Deviation (time, Prototype): 0.919

Standard Deviation (errors, Prototype): 1.155

(b) Mean (age): 22.333 Standard Deviation (errors, Opal Travel): 3.512

Mean (Mental Demand): 3.000 Mean (Physical Demand): 4.333

Mean (Temporal Demand): 4.333 Mean (Performance): 2.333

Mean (Effort): 4.000 Mean (Frustration): 5.667

Standard Deviation (Mental Demand): 1.000

Standard Deviation (Physical Demand): 1.528

Standard Deviation (Temporal Demand): 1.155

Standard Deviation (Performance): 1.155

Standard Deviation (Effort): 1.000

Standard Deviation (Frustration): 1.528

*3(a) and 3(b) are also included in the 'Data_Sheet.xlsx'.

(c) Briefly summaries the results above and your findings.

In the formal trial, we choose 3 participants which are 2 males and 1 female with an average of 22 years old and the standard deviation is 3.5 which means they have a nice age gap. They are all international students who have not used 'Opal Travel' before with similar frequency to go to school. The feedback shows that, the performance and frustration are high values which means testers can understand the activities and instructions and proceed frequently in the experiment. From the data of three demands, it turns out that it is a moderate strength experiment with values of 3 and 4 out of 7.

Through the mean values between 'Opal Travel' and Prototype, it can conclude that for the new users to two applications to complete the same series of activities, the prototype takes less time but

makes more error on average. Since the number of data sets is too few, the result of standard deviation is without the consideration.

If we set an X to determine the efficiency of the application, X should equal to T which is time multiple E which is the number of errors. Before doing that, the data should standardize by min-max normalization. The smaller the X is, the better the application performance in efficiency. The conclusion is the efficiency of using Opal Travel is a bit better than prototype which separately are 0.282 and 0.367.

To improve the prototype, the interface should be more concise with clear instructions combined with more logical designs which be close to most student user's habits. For example, the switch between map page and other functions should be more flexible and optional.

* The standardization and the result of X are sown in the 'Data_Sheet.xlsx' – 'Standardization' sheet.

4. Field Study

Compared to field study, our experiment has its own limitation:

1. Real time consumed may be bias because it cannot be examined in the experiment since the most time using the application is on the way.
2. The function of navigating cannot be properly tested since we do not know which can do better navigating without observing the real situation.
3. The convenience of the application cannot be tested since each application has other different functions to use in different situations, the experiment cannot expertise every situation.
4. The interaction function like feedback cannot be tested because if it is useful depends on the number of the users and data accuracy, it cannot be tested in a one-to-one experiment.
5. The UI problem may be hidden since in the experiment, experimenter tells the tester what to do. However, users may be confused by the UI without any commands or instructions in wild.