



# HCI 2017 – Assignment 2 Cover Sheet: Design Concept through Paper Prototype

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## Section 1.1 Personal Details

Full Name: **WANG** **SHAN**  
Last First

Student Number: **Z5119666**

Course enrolled (put X next to applicable course):

Enrolled tutorial Details (Eg. Day: Wed; Time: 09):

☒ COMP3511

Day: ☐ MON ☐ TUE ☐ WED ☐ THU ☐ FRI ☐ SAT ☐ SUN Time: ☐ 09 ☐ 10 ☐ 11 ☐ 12 ☐ 13 ☐ 14 ☐ 15 ☐ 16 ☐ 17 ☐ 18 ☐ 19 ☐ 20

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## Section 1.3 Assessment: Tutor Use ONLY

Reflection on the User Centred Design Process /15  
(Lessons learnt, benefits of process, effectiveness of process)

Data Gathering Techniques (technique discussion, advantages and disadvantages and examples of each) /9

Presentation, Referencing, and use of Usability Terminology /6

Total /30

Comments

**COMP3511**

**Human Computer Interaction**

2017 -- Semester 2

**Assignment 2**

**Individual Reflection**

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Wang, Shan

z5119666

z5119666@ad.unsw.edu.au

Tutor - Angus Yuen

(Monday 13 pm)

# Introduction

Our group designed a trip generate application interface. The transportation planning application allows users to plan, book, and track their journey based on user preferences and needs. It is targeted towards young commuters and travelers. The design of interface of the application we followed is user centred design process, especially data gathering techniques.

## User Centred Design Process

### Conceptual Designs to Information Discover Techniques

The first step of a user centred design process is conceptual design. "Conceptual design is concerned with transforming requirements into a conceptual model." (Preece, Sharp and Rogers, 2015). The fundamental step is designing the conceptual model (Preece, Sharp and Rogers, 2015). With the using of creative thinking, each member of the group created an idea of transport service and did brainstorming individually. The advantages of brainstorming are it covered every aspect and allow full evaluation since the principle of brainstorming is encouraging all different ideas without any prejudice (Marcus, 2017). Brainstorming is an effective method to generate ideas and narrow down the design objective.

During the group meeting, we decided the final vision of the product after the quick evaluation of each member's idea. We discussed the design objective and determined product statement. 'Product Statement' is describing the required function of the product to achieve the user's requirements (Vassar, 2017), which not only provide a general frame of the product but also help designers to achieve the design goals. 'Product Statement' is useful since it helps designers to focus on the chief function of the product. In the process, we also considered the people involved and personas. There are 3 type users involved: primary, secondary, and tertiary. Primary are those who regularly use the product directly; secondary are infrequently handling the system or who use it by an intermediary, and tertiary are those influenced by the products or who probably affect the purchase (Preece, Sharp and Rogers, 2015). 'Personas' are the full description of different types of users of the system which the product designed for (Preece, Sharp and Rogers, 2015). Personas are realistic but not the description of real people which include user's skills, attitudes, tasks, and environment. The advantage of this step is providing the designer basic idea of involved people's personalities and essential requirement of them. However, this session not useful in the real process, since the users who will use the product is settled and we only focus on those. Therefore, a full description of a type of users is unnecessary. Compared to personas, scenarios are more helpful. 'Scenario' is an informal narrative description

which used to describe users' tasks in a limited condition with the exploration of contexts and requirements (Preece, Sharp and Rogers, 2015). The advantage of scenario is that issues are more likely to be found in a limited situation. It is an efficient way to imitate the condition of using the product.

During the design of a system, there are two types of requirements we considered: functional requirement and non-functional requirement. Functional requirement includes what the system should do, and the non-functional requirement is the constraints of the system or its development (Preece, Sharp and Rogers, 2015). It's essential to think these since one is used to achieve the tasks of the product and the other makes the process smoothly and without difficulties. This step efficiently states what the designer needs to show on the product directly. There are also two techniques to discover information about user experience: questionnaire and interview. "Questionnaires are a well-established technique for collecting demographic data and users' opinions." (Preece, Sharp and Rogers, 2015). The benefit is data can reflect user experience. However, in reality, the conduction of questionnaires was not performed well since people do not want to waste their time to answer open questions. 'Interview' is considered as conduct a conversation with purpose (Preece, Sharp and Rogers, 2015). People were not willing to get the interview since it is a bit of time-consuming.

## **Data Gathering**

The next step is data gathering for requirements. The purpose of this activity is to gain appropriate, enough and proper data so that requirements can be produced (Preece, Sharp, and Rogers, 2015). There are 5 data gathering techniques. The three main techniques are interviews, questionnaires, and observation (Mednis, 2017). And observation includes direct observation in the field, direct observation in a controlled environment, and indirect observation. The other is focus groups. The definition mentioned above. The data it gathered is mostly qualitative. The advantage is interviewer can lead the interviewee to help connection between developers and users (Preece, Sharp, and Rogers, 2015). The disadvantage is time-consuming. In realistic, interviewees probably acquaintance (Preece, Sharp, and Rogers, 2015). For example, it is hard to find a stranger to interview since they probably do not trust you and there is no need to waste their time. The definition of questionnaires is defined above. Questionnaires can gather quantitative and qualitative data. The advantage is that can reach many people with the low resource (Preece, Sharp, and Rogers, 2015). The limitation is the reply standards may be low level, the data generated may not suitable (Preece, Sharp, and Rogers, 2015). For example, people are more likely to take a questionnaire rather than an interview, but they often leave the open question empty. "Observation is useful data gathering techniques at any stage during product development." (Preece, Sharp, and Rogers, 2015). 'Direct observation in the field'

states that understanding the context of user activity (Preece, Sharp, and Rogers, 2015). The benefit is it provides unique information that other methods do not give. The disadvantage is time-consuming since the database is tremendous. For example, the data from the observation of customers in electronic devices experience shops. Direct observation in a controlled environment can capture the detail of what individuals do (Preece, Sharp, and Rogers, 2015). The advantage is the details of an assignment are easy to be found. The problem is the situation may not precisely since it is artificial. For example, we conducted usability test under a controlled environment, but some tasks are not reasonable and some are repeated. However, details can be focused and problems can be easily found. 'Indirect observation' is observing users without disturbing their performance, and data captured automatically (Preece, Sharp, and Rogers, 2015). The advantage is users do not distract by the data gathering and there is no time limited. However, the drawback is a lot of data needs tool support to analyze. The other data gathering technique is focus groups, it desirable for collecting multiple viewpoints (Preece, Sharp, and Rogers, 2015). 'Focus groups' highlights fields of agreement and disagreement and promotes the connection between developers and users. However, it may affect by aggressive characters. For example, the preference of transports means can be easily generated by focus group.

## **Paper WireFrames to Iterate the process**

We used paper wireframes since its flexibility and low technology. The details such as button arrangement are taken into account when we drew the wireframes. The only problem is time-consuming and electronic prototype probably better. Planning and running usability tests are the most crucial part of the user centred design process. During the preparation, we updated product description statement and created scenarios and made a list of tasks to test our system. And almost all the steps before is planning. While carrying out assignments, we encouraged users to think aloud. Also, we use pre-questionnaires and post-questionnaires to find out their technical skills and their feeling about using our product. One of the members talked to the user to indicate what tasks are. Another changed the paper when the user navigated through different menus. Others record users performance. For instance, time to finish an assignment, number of errors per assignment, number of errors per unit time, kind of errors per task, number of users making a different mistake, and number of users completing a task successfully. To interpret and present the data, we use issues table to show the results, including a brief description of the problem, which principle it belongs to, type of the problem, and severity of the problem.

## **Conclusion**

The user centred design process is useful in the development of a product interface. Especially, product statement, functional and nonfunctional requirement, and usability test. These steps give the designer direction of designing and feedbacks to improve the product. During the iteration, the product becomes more acceptable by users and much different to the original vision.

## Reference

Marcus, N. (2017). *Visual Thinking, Design, and Sketching*.

Mednis, A. (2017). *Interviews and Questionnaires*.

Preece, J., Sharp, H. and Rogers, Y. (2015). *INTERACTION DESIGN - BEYOND HUMAN-COMPUTER INTERACTION 4E*. 4th ed. Chichester: Wiley.

Vassar, A. (2017). *Design Process: From Idea to Scenarios*.