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Evaluation of User Experience on Customer Services Mobile Application

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Abstract— The User Experience factor is an important facet of today's mobile application interface design. The functionalities, contents and services provided by the application will affect the experience of users who use these mobile applications. This paper intends to discuss the evaluation process of mobile application for consumer-related services. The researchers will then deliberate on the analysis done, and the respective results will also be presented.

Keywords— Mobile Application, Customer Services, Mobile Technologies, Smartphones, UX.

I. INTRODUCTION

For the past two decades (1990-2010) we have seen a tremendous growth in mobile technology globally. This growth can be attributed to the evolution of mobile devices – i.e. more powerful processors coupled with the easy accessibility of applications for consumers (for example, through App Store and Google Play Store), and the rapid advancement of communication and wireless technologies (for examples, the 4G and LTE (Long-Term Evolution) technology).

The need for mobile applications running on smartphones has led to the extensive development and commercialization of these sorts of applications [4].

One of the most popular mobile application which have been developed by business organizations is the customer services oriented mobile apps [1,7]. Business organizations realize the importance of good customer services in ensuring the success of their businesses.

However, business organizations tend to focus more on the functionalities of the application rather than the applications' usability and user experience (UX) factors. This phenomenon has rendered many applications in the market having poor user experience.

The aim of this paper is to study how usability and user experience can be evaluated and "captured" in mobile apps specifically those which are customer services oriented applications.

II. USER EXPERIENCE AND RESEARCH METHODS

Basically, user experience can be defined as experience the user gets when interacting with the product or service under certain conditions, for example, when users and products interact in a specific scenario where social and cultural factors are affecting each other [6]. In fact, there are many different types of people, products, services or environments that can affect interactions simply because users have the following aspects: values, emotions, expectations and past experience [9]. In addition, products also have other UX-influencing factors such as mobility and adaptability.

In order to examine the interaction between users and products, researchers need to determine the "nature" of the product. This is simply because the type of product or service will affect the methodology used, and the very purpose of conducting the study. Furthermore, the target user also needs to be defined clearly before testing is done. For example, the interface should be simple and clear if the products or services are going to be used by users who are not very familiar with the devices used [3].

There are several ways to capture experience in user experience research. These methods include interviews, observations, surveys, diaries, prototyping, and storytelling [8,2,9]. As for ubiquitous computing environment, other new aspects have to be considered when conducting user experience research. According to Mark Weiser's vision [10], when evaluating interaction in ubiquitous environment, the environment and the system should be invisible to the user. Interviews and observations have been used in this challenging environment to evaluate user experience [3].

Interviews are considered to be an effective way to collect user experience's parameters, especially for the subject and product-related factors. This is simply because the test session can be like a chatting session for the subjects and the researcher. This will provide strong possibility of creating a calm and good atmosphere between the researcher and subjects. This will enable researcher to focus on the most relevant issues and lead the discussion in the right direction. This is particularly effective when collecting subjective

experience. Moreover, it is an easy way to get information about the user's background, feelings and expectations of the application being examined.

On the other hand, observation is also a good method to gather user experience from non-verbal expressions. This is important because at some point user may not know how to verbally express his or her personal experience. Through observation, researchers may also study user behavior, habits and emotions when users are navigating the mobile apps interface.

III. METHODS

A. Subject Profile

Fifty (50) subjects have participated in this study base on a voluntary basis. The subjects were from members of public and their ages are between 20 to 60 years old. Table 1 shows the distribution of the number of subjects for each age range. Most of the participants were between 21 to 40 years old. These age ranges reflect the active users who are using online services to complete their tasks such paying bills or getting related information to the services. In the sample, on 5 subjects are above 51 year old. The research speculated that the number of users on this category will increase dramatically in years to come.

TABLE I. SUBJECT PROFILE

Sex		Age					
M	F	<=20	21-30	31-40	41-50	51-60	>=60
30	20	5	24	12	4	2	3

B. Test Plan

In this study, the two main user experience evaluation techniques used were interview and observation techniques. Subjects were briefed on the tasks they needed to complete before starting the actual test/evaluation process.

In order to ensure that all interactions (between subjects and the apps) were captured during observation, video recording method was used throughout the testing phase.

An interview session was held, once subjects had completed the set of tasks given. Questions asked were associated to factors pertaining user experience. These factors include subjects' emotion, the mobility and adaptability of the customer services apps, the contents of the application, and the, social and cultural factors.

C. Data Collection

During the usability test, all subjects were requested to perform a set of predefined tasks. Both the android and iOS machines have been installed with the application. Participants can then choose either to use android or iOS platform to complete the given tasks.

The tasks which the subjects need to complete are listed in Table 2.

TABLE II. THE LIST OF TASKS

Task Number	Tasks to be completed by subjects
Task 1	- Launch the customer services application in your mobile device.
Task 2	- Go to the "Application Calculator" and then calculate the estimated cost.
Task 3	- Go to the "Locator" page, and then identify your preferred Customer Service Centre.
Task 4	- Go to the "Information" page, then read one of the newsletters/announcements.
Task 5	- Go to the "Contact Us" menu and choose your preferred method to report a service interruption. (For example: make a phone call or using SMS, then cancel it at the last step since this is only a test/an experiment).

The researcher will record the time taken by the subject to complete each of the task, and also the number of errors the subject made when doing each of the given task. Each participant was given a maximum duration of 5 minutes to complete each of the given task. No interaction whatsoever between the researcher and subject happened during the testing phase. Explanations were given prior to the start of the test.

IV. RESULTS AND DISCUSSIONS

This study reveals some "undesirable" usability issues pertaining to some of the application's functionalities. Also, it was shown that the application should be tested on a real device with real subjects (some subjects had even mentioned that they prefer to use their own devices, rather than the one provided by the researcher).

Figure 1 shows the overall average time taken by subjects to complete each of the given tasks. According to Nielsen, the actual effectiveness of a system is achieved when there is an appropriate balance between functionality and usability [11].

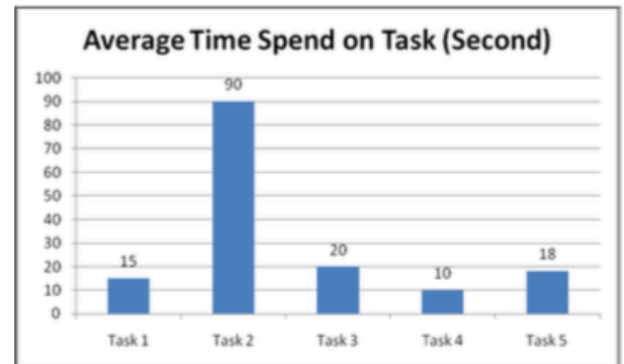


Fig. 1. Average Time Spend on each Task (in Seconds)

From the result shown in Fig. 1, it can be seen that task 2 took the longest time taken to complete as compared to the other tasks. This is due to the difficulties faced by subjects to locate the actual value's input area for calculation.

The application calculator page's interface confuses subjects and, not attractive and difficult to use. In contrast, the other tasks were completed by subjects in 20 seconds or less.

Besides that, there were also some concerns highlighted by subjects throughout the interview session. One of the issue raised by subjects was that they (i.e. subjects) were not comfortable using the given testing device. Instead they preferred to use their own devices (even though the same brand and model was provided).

Another issue raised by subjects was, to get to the customer service centre location's functionality; it needed 3 to 4 steps in order to complete the task. This happens, despite having an auto search feature, i.e. auto search function unable to connect with the navigation function.

Even so, the overall interview result shows positive responses from subjects on the apps tested. The participants gave good comments on the use of media (in the apps), color scheme, as well as the font size used. Table 3 summarizes the feedbacks obtained from subjects through the conducted interview session.

TABLE III. EMOTIONS FEEDBACK RESULT

No.	Question	Feedback	
		Yes	No
1.	Is the application confusing to use?	24%	76%
2.	Does the application bore you?	16%	84%
3.	Do you feel frustrated when using the application?	4%	96%
4.	Do you find it difficult when accessing the application?	12%	88%
5.	Using the application makes you feel depressed ?	2%	98%
6.	Do you think the application has benefitted users?	90%	10%
7.	Do you feel excited when exploring the features in the application?	94%	6%
8.	Do you like using the application?	88%	12%

V. CONCLUSION

This paper presents a user experience evaluation process of a selected mobile customer services (oriented) application. Based on the results we obtained from our study; it shows that the overall interface designs of the application are accepted by users. However, users are still having issues with the application's calculator page and the locator page.

Our work will continue with the usability test in search of an improved user experience and user acceptance for mobile application.

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