Differences in Enhancing Enrollment System between Web Application and Mobile Application for Rangsit University, Thailand

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Abstract—This paper presents a comparison between using a desktop web application and a mobile application for students enrolling in courses at Rangsit University, Thailand. In addition, Rangsit University has enhanced the enrollment process by leveraging its information systems, which allows students to choose to enroll in courses online. In order to use the system, students must provide their identification and personal documents for registration. The reason to have a mobile application is to support students' ability to access the system at anytime, anywhere and anyplace. The objective of this paper was to: 1. Evaluate the success of developing a user friendly mobile device system and 2. Measure user interest in future mobile development.

Keywords—Mobile Application, Web Application and Enrollment System.

I. INTRODUCTION

FOR the past few years, no one can deny that education is the most important factor in creating human capital for many industries. Many students have the opportunity of getting new jobs that are reserved for those who are well educated. While a good education can bring talented students to the decent workplace, it also increases their quality of life. A good education is supposed to give students better skills and knowledge in order to support the demands of their future careers. As a matter of fact whenever a student has a decent educational background, it can create more chances to get whatever they are looking for. Therefore, this paper considers that education may serve as a key to unlock career opportunities.

For this reason, the Department of Information Technology at Rangsit University (RSU) has initiated a project to develop a mobile application which enables students to apply for courses online. RSU is a leading private University in Thailand, where there are 32 faculties and 32,000 students at the main campus. Each semester, the majority of students would like to enroll for their courses during the same time frame. This leads to a problem for the IT department, which must make a plan to expand its capacity and create another

channel of services. There are at least two online enrollment alternatives.

Firstly, students can go to URL http://rsu.ac.th which is the directed access to the main enrollment website. Secondly, students who have smartphones can go to the app store for iOS and download a mobile application called "RSU APP", and then install the application onto the mobile. After that, they can choose the admission menu and use online enrollment. This paper is focused to understand the differences in usability and satisfaction between a traditional web application and a mobile application for comparable uses. In addition, it helps to plan for enhancement and investment of future of mobile application development. Interviews of 100 current RSU students were conducted for this study, so that they could give valuable feedback in terms of user perspectives.

II. DESIGN AND EVALUATION SYSTEM

Questionnaire [1]-[2] form has combined a series of questions that were collected scientifically and systematically. It can be measured by what the researcher wants to assess a representative sample of the target population. This is to obtain facts of the past and present, while forecasting future events. The questionnaire contains questions to elaborate on many aspects to collect information about opinions and facts. Questionnaires were used by a volunteer group to collect the data. In order to build a questionnaire, the major concern is to come up with important questions for research. This is because the researcher who creates a questionnaire might not have the opportunity to actually meet the respondents and explain the exact meaning of the questions being asked. A questionnaire is one of the most widely used types of research tools because data collection and evaluation can be used in various areas of education. Data collection can be done by interview or by asking respondents exploratory questions by using a questionnaire.

The process of creating a questionnaire consists of the following major steps: 1) The study of questions and features to evaluate study characteristic may be found by research objectives. The concept or hypotheses are concerned. Then study the variables to be evaluated in order to thoroughly understand both theoretical and operational definitions. 2) Determine the type of questions to be included in the questionnaire. This can be classified into open-ended questions and closed-ended question. 3) Design the draft of questionnaire. When a researcher determines features and issues to be measured, then he or she determines what type of

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questions should be included in the questionnaire. The researcher writes sentences that cover every aspect of issues to be evaluated and writes a structure of the questionnaire, then update the questionnaire after the process of creating the questionnaire has been completed. Researchers should review each question. This is to find any mistakes and anything that should be revised. Moreover, an expert should be invited to review questions in the questionnaire. By doing this, the expert will be able to offer suggestions and criticisms to improve the questionnaire. 4) Question analysis 5) Use the questions from a questionnaire that have already been updated to experiment with a small sample. This helps to check the quality of question results. By doing this, there are several ways to determine the quality of the questions. 6) Updates to complete a questionnaire. Researchers must fix any errors that are discovered as a result of analysis and maintain quality of the questionnaire. Verifying the accuracy of statements and expressions helps the questionnaire become complete and also assists respondents to understand the information that researchers need. This leads research results to be more reliable. 7) Published questionnaire: The final printed questionnaire has been successfully updated, and applied real data that are collected from the published target group. The number of printed questionnaires should not be less than the number of targets for data collection. The printing should be backed up in case the questionnaire is lost or if the respondents do not reply to the questionnaire.

III. METHODS AND PROCESSES

A. Method I

Mobile apps are typically broken down into common screens such as a login screen, a settings screen, or a form to collect a batch of information. Often, Developer team start by defining these screens to make sure everyone has the same understanding of what the idea means. Sometimes designers and programmers will have a different approach to a project, so agree to a plan can save a lot of time by preventing someone from going down the wrong path. Once we agree on functionality, our designer can work without any input from the developers. What comes out of these design sessions are screenshots.

Screenshots provide a mock-up of each screen in the application and help showing the application's workflow (see Fig. 1). The screenshots also show any potential gaps in functionality. In that case, we define the additional functionality, and the designer creates the appropriate mock-ups. These screenshots also function as a style guide by showing details such as the dimensions of design elements, fonts, and color schemes. The coders use these guidelines as their requirements document, and the designer can move on to the next project. Once the screenshots are defined, we translate the screenshots into code. Each of the apps highlighted in this article is native iOS apps.

There are some concerns for mobile development that are supposed to be pointed out as following;

- Tools and APIs required building applications for the iPhone platform using the iPhone SDK.
- User interface designs for mobile devices and unique user interactions using multi-touch technologies.
- Object-oriented design using model-view-controller pattern, memory management, Objective -C programming language.

Fig. 1 Enrollment form through Mobile App

B. Method II

This process is to test the questionnaire form by disseminating it to those who are likely to apply and study at private universities. Testing is focused on a group of people who would like to enroll their course at Rangsit University. The following is a sample of questionnaire form Fig. 2 Enrollment form through Website.
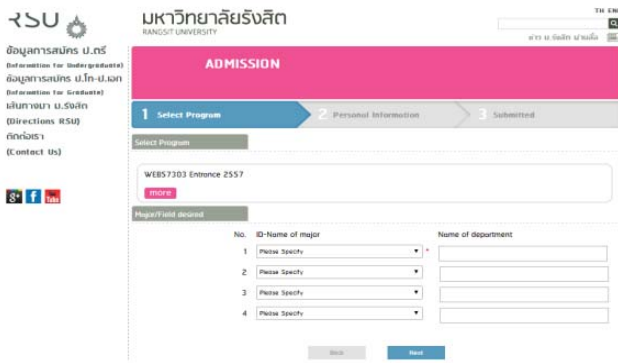
Fig. 2 Enrollment form through Website

We can consider the comparison of testing RSU information system through admission between Website Application [3]-[5] and Mobile Application [6]-[9]. There is a comparison test for admission through the Web Site Application and Mobile Application. The result of this testing is to see whether in different technique and time used for enrollment. This testing was done in the same area of the campus using Wi-Fi Internet. Website admission pass at the speed Internet 11.03 Mbps HP Windows7 32 bit computer memory RAM 4 GB. Whereas, Mobile Application connects the Internet 10.71 Mbps speed via using I-PHONE 5 Version 6.1.2.

IV. CONCLUSION

Test results from the survey shown in Fig. 3 survey of 200 students show Male accounted for 58.50 percent of respondents, whereas Female accounted for 41.50 percent. Alternatively, the Bachelor figure is 75 percent, followed by Master 12.00 percent and the Doctoral figure is 13.00 percent. The demand for enrollments through the Website percent is 40.50 percent and 59.50 percent for Mobile Application enrollment.

Analyze Questionnaire Data		
Respondent's data		
Sex		
Male	117	58.5%
Female	83	41.5%
Total	**200**	**100%**
Education		
Bachelor	150	75%
Master	24	12%
Doctorate	26	13%
Total	**200**	**100%**
Enrollment Via		
Website	81	40.5%
RSU APP	119	59.5%
Total	**200**	**100%**

Fig. 3 Analysis figure from questionnaire data

Analysis of figures from questionnaire data from Fig. 4 shows Test results for demand of students who will enroll in the online course categorized by genders. The figure indicated that the male has a higher percentage chance of using the website for admission, which is 61.34 percent. On the other

hand, the figure shows 38.66 percent of females prefer using the website for admission. Surprisingly, although the question has changed to admission through Mobile Application, the result remains almost the same figure as the Website, which is approximately an 8.0 percent difference.
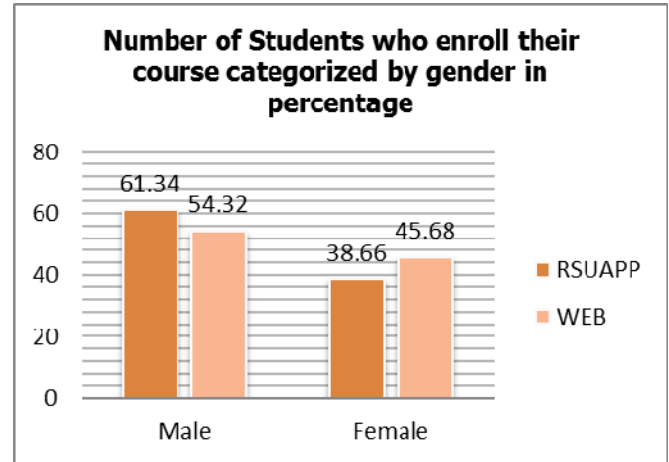

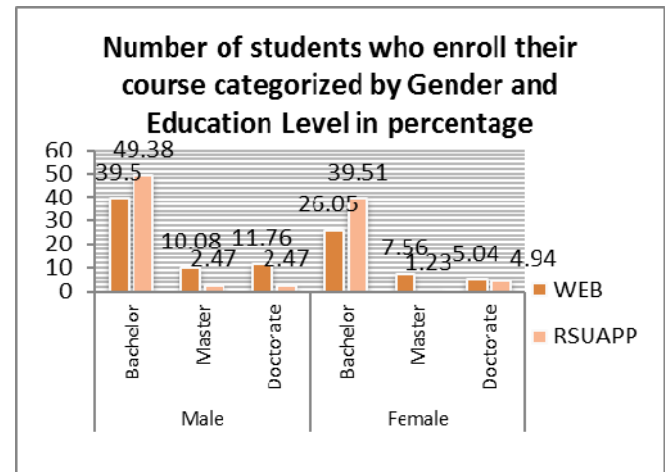Fig. 4 Analysis figure from the bar - chart and categorized by genders

Fig. 5 Analysis figure from Bar-Chart and categorized by genders and Education Level

Surprisingly, female students have a low figure in overall education level when compared to male students. In addition, it can be seen clearly from Fig. 5 that both genders of male and female students who are in Bachelor degree want to use Mobile Application for admission, whereas others education levels, such as Master and Doctorate, prefer to use the website application for admission.

TABLE I
ANALYSIS OF QUESTIONNAIRE AND CATEGORIZED BY SEX WEB % RSU APP %

	WEB	%	RSU App	%
Male	73	61.34	44	54.32
Female	46	38.66	37	45.68
Total	**119**	**100**	**81**	**100**

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The demand of students who want to enroll in courses online can be seen from Table I Test results, which are categorized by genders. The figure indicates that the male has a higher percentage chance of using the website for admission, which is 61.34 percent. On the other hand, the figure shows that 38.66 percent of female prefer using the website for admission. Surprisingly, although the question has changed to admission through Mobile Application, however the result remains almost the same figure as Website, which is approximately an 8.0 percent difference.
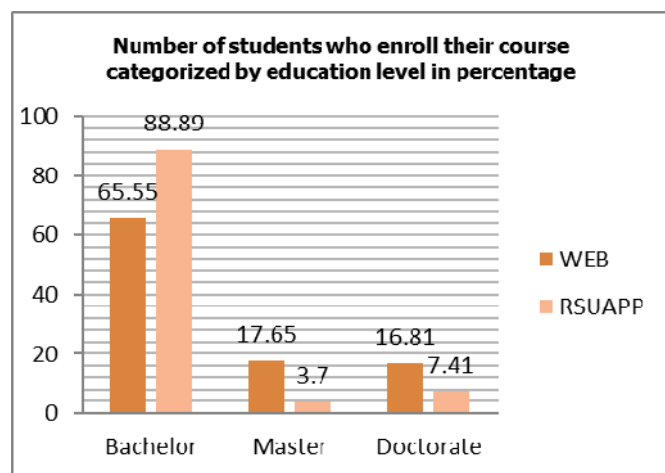

Fig. 6 Analysis figure from Bar-Chart and categorized by Education Level

It can be seen from both the Figs. 5 and 6, which are the demand from students who are likely to study, categorized by education level that the demand for using the website for admission is for 65.55 percent, compared to the demand for using mobile application, which is represented 88.89 percent. Meanwhile, 17.65 percent of students who attend a master course are likely to use website, whereas figure represents mobile application in 3.70 percent decreasingly.

Furthermore, the lowest number of students enrolled in the doctoral course through the website, accounting for 16.81 percent of enrollments, whereas merely 7.41 percent of students enrolled in the same course through the mobile application.

V. Summary

This research was conducted by comparative methods to see whether it is feasible to invest in further development of mobile application by comparing and contrasting using the traditional website application. It can be found that the majority of students are likely to use a new system if it is provided. They are currently satisfied using a new mobile application rather than the website application.

From this study, it can be realized that there are number of students who use mobile devices have been increased dramatically, RSU should be prepared for Mobile Device Management (MDM). This helps RSU to deploy and enforce IT policies to user's mobile in the campus. In addition,

students need an easy way to access information to choose classes on the time table provided by the University. As a matter of fact, a mobile application creates a social community and give support to two-ways communication between RSU and students. However, comparing these two applications between Website and Mobile application, in terms of access speed, there is only a slight difference. For this reason, the traditional website application is still adequate at present.

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