DESIGN OF GRAPHICS USER INTERFACE FOR SBC EXIT-EXAM SYSTEM

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Abstract— Design of Graphic user interface for SBC Exit-Exam System with the objectives as follows (1) to Study the needs of users in designing graphical user interfaces for SBC Exit-Exam system and (2) Design of Graphic user interface for SBC Exit-Exam System, The research tools were questionnaires and system prototype designs with Adobe XD CC.The results revealed as follows: the results of the assessment on the overall need in the graphic design of user interface model for the SBC Exit-Exam system is in high level with the Average at 4.15. When considering each area above, it was found that the design of the layout focuses on simplicity, without 3D images, making both shadows and colors having same background, and choosing to use various elements that look simple, not striking but colorful, is chosen by the users in first priority with the Average at 4.45.

Keywords- Graphic User Interface Design, Graphic Design, Exit-Exam System.

I. INTRODUCTION

With reference to the Notification of the Ministry of Education on "The National Qualification Framework for Higher Education, 2009 (B.E 2551), it requires the preparation of standard for qualification or course/field of study so that the higher education institutions can apply to develop or improve their curriculum and implement the schooling to ensure the quality of graduates in the program or the filed of study in each level of qualifications with similar standard. Therefore, it is necessary to establish the standard of Bachelor's degree and the verification of learning outcome standard. All higher education institutions are required to have the system and mechanism to verify the standard of their students' learning outcome to confirm the effectiveness of evaluation that all graduates are at least qualified by the learning outcome set in the standard. It requires all higher education institutions organize the examination of overall learning process prior to graduation (Exit Examination) by using the central examination approved by the Commission consisting of experts in fields of study in higher education network group [11]

The tendency of Mobile Device applications, like smartphones, has significantly increased in recent years, resulted by the development of Mobile Applications and the technology of mobile devices by mobile phone manufacturers, especially the development and the expansion of mobile applications by various companies to compete for No. 1 position in the market in terms of Mobile Application. The development of applications is divided into the development of Operation System and Software Applications that respond to the applications on devices. In addition, with more applications and more efficient applications, mobile device users tend to use

programs to fulfill their daily activities including making financial transactions, connecting and searching information on internet network, watching movies, listening to music or even playing both online and offline games. Based on the growth rate of mobile device applications, many leading mobile phone companies are focusing on the development of applications on mobile phones, they believe that the downloading rate will be noticeably increased. [1]

Based on the survey in latest year, it was found that the internet usage behavior of Thai people continues to increase, most Thai people spend more time to serve on internet up to 10 hours and 5 minutes per day, increasing from the previous year for 3 hours and 41 minutes per day. The Gen Y is still ranked as the top of internet users for the 4th consecutive year, resulted by their life span living in more digital transformation world. (data source from THAILAND INTERNET USER PROFILE 2018). Additionally, "We Are Social", the digital agency, and "Hootsuite", the social media and marketing solution service provider, had collected statistic data on worldwide internet usage in order to show the changes of both online business sector and consumers' internet usage behavior in each country, it presented that at present, there are more than 4,000 million internet users worldwide.[2]

Figure 1. Digital Around the world in 2018

Therefore, from the trend of technology growth and the trend of usage of mobile devices such as smartphones, especially in the youth group, the researchers have a concept of studying the guidelines for graphic user interface requirements. For the test of the standard of knowledge before graduating from the Southeast Bangkok College Which is a private higher education institution, opening teaching and learning by using the National Higher Education Qualifications Framework, BE 2552 (2009) in order to use the information obtained from research to develop a standardized test system for learning technology and English language on the device Mobile to get the system that meets the needs of the students of Southeast Bangkok College.

II. PURPOSE OF STUDY

2.1 `to Study the needs of users in designing graphical user interfaces for SBC Exit-Exam system.`

2.2 Design of Graphic user interface for SBC Exit-Exam System.

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III. LITERATURE REVIEW

A.Theories

1. User Interface Design Basics

User Interface (UI) Design focuses on anticipating what users might need to do and ensuring that the interface has elements that are easy to access, understand, and use to facilitate those actions. UI brings together concepts from interaction design, visual design, and information architecture. Choosing Interface Elements

Users have become familiar with interface elements acting in a certain way, so try to be consistent and predictable in your choices and their layout. Doing so will help with task completion, efficiency, and satisfaction. Interface elements include but are not limited to:

- Input Controls: buttons, text fields, checkboxes, radio buttons, dropdown lists, list boxes, toggles, date field

- Navigational Components: breadcrumb, slider, search field, pagination, slider, tags, icons

- Informational Components: tooltips, icons, progress bar, notifications, message boxes, modal windows

- Containers: accordion

There are times when multiple elements might be appropriate for displaying content. When this happens, it's important to consider the trade-offs. For example, sometimes elements that can help save you space, put more of a burden on the user mentally by forcing them to guess what is within the dropdown or what the element might be.

Best Practices for Designing an Interface
Everything stems from knowing your users, including understanding their goals, skills, preferences, and tendencies. Once you know about your user, make sure to consider the following when designing your interface:

- Keep the interface simple. The best interfaces are almost invisible to the user. They avoid unnecessary elements and are clear in the language they use on labels and in messaging.

- Create consistency and use common UI elements. By using common elements in your UI, users feel more comfortable and are able to get things done more quickly.

It is also important to create patterns in language, layout and design throughout the site to help facilitate efficiency. Once a user learns how to do something, they should be able to transfer that skill to other parts of the site.

- Be purposeful in page layout. Consider the spatial relationships between items on the page and structure the page based on importance. Careful placement of items can help draw attention to the most important pieces of information and can aid scanning and readability.

- Strategically use color and texture. You can direct attention toward or redirect attention away from items using color, light, contrast, and texture to your advantage. Use typography to create hierarchy and clarity. Carefully consider how you use typeface. Different sizes, fonts, and arrangement of the text to help increase scan ability, legibility and readability.

- Make sure that the system communicates what's happening. Always inform your users of location, actions, changes in state, or errors. The use of various UI elements to communicate status and, if necessary, next steps can reduce frustration for your user.

- Think about the defaults. By carefully thinking about and anticipating the goals people bring to your site, you can create defaults that reduce the burden on the user. This becomes particularly important when it comes to form design where you might have an opportunity to have some fields pre-chosen or filled out.[6]

B. Researches

Research on Prototype design of graphics user interface for electronic medical record Explained that patients' medical records. This could be a document recording that cause drawback of delay in writing and looking out, waste cost, document could loss and corruption. Electronic medical records system is employed to assist solve these issues. However users have to type a lot of characters and sentences that lost time, data entry error and inconvenient to use. Additionally, medical records can't be used totally due to lack of information detail that doctors have to be compelled to monitor patients, continuous patient care and adoption, as evidence by lawsuit .This research use the User-centered Design and the Graphic User Interface to help within the style and development of a simplified prototype for electronic medical record.[3]

Research on A design and development of the user interface for the individual development plan system of the Bank of Thailand Explained that To analyze the the human factor that are affected by the design and development of the user interface for the individual development plan system of the Bank of Thailand. This design is adapted to each workers' ability. In this research, it is found that the old method was developed so that it would be more convenient for every group of users. This new method focuses on the group of workers from BOT that had experienced with this system. After the system

has been operated, there has been an experiment, which the solutions are 1. The users who work with the interface for the individual development plan system, 38.67% are old user interface while 61.33% are new user interface. 2. The new user interface can decrease the risk of mistake in filling up 2.1 Grade data by 4.3714 times or 87.43%. 2.2 Score data by 3.8571 times or 77.14%. 3. The new user interface can decrease the amount of time in operation by 14.28% and decrease the distance of using a mouse in filling up the data by 8.35% [4]

Research on Factor saf ecting the usability of icons on the mobile phone screen Explained that screen. The data came from the survey of two sample groups. The first target group was 400 mobile phone users in Thailand. The instrument used for collecting data was questionnaire. The second group was 2 designers working in computer graphic user interface: GUI design and 2 marketing experts in mobile communication industry. The instrument used for collecting data was semi-structure interview. Percentage, arithmetic mean, standard deviation, t-test, analysis of variance: ANOVA Scheffe analysis and least significant difference: LSD were used to analyze the data via SPSS for Windows software. The investigation indicated that the significance of factors affecting the usability of icons on the mobile phone screen was in the high level and could be ranked respectively as follows: 1) Meaningfulness, 2) Floatability, 3) Message quality, 4) Styling quality, and 5) Feedback. When considering each aspect, there are 4 items that are most important for icon usability as follows: 1) Speed, 2) Recognizablility, 3) Communicativeness, and 4) Resolution and sharpness. The comparison of the significance levels of factors affecting the usability of icons on the mobile phone screen rated by personal factors, feature of mobile phone, behavior of mobile phone user and psychological characteristics. The results showed that age, monthly income, brand, type of the mobile phone screen, user purpose, user attitude and taste in the shape of mobile phone were the significance levels of factors affecting the usability of icons on the mobile phone screen different.[5]

IV. RESERCH METHOLOGY

B.Population and Sample

Population is 3,250 students of Southeast Bangkok College.

Sample is 356 students from Southeast Bangkok College, based on Taro Yamane's formula.[7]

Formula to calculate the sample size of Taro Yamane

$$n = \frac{N}{1 + N * (e)^2}$$

n - the sample size
N - the population size
e - the acceptable sampling error

C. Tools

1. Quality evaluation form for mobile application design platform And analyze data using the software package Statistics for data analysis include)Mean: M) and)Standard deviation: SD)]8] the average score is a measure based on Best w. john. as follows .]9]

Average   level of satisfaction
4.50-5.00 is Very High
3.50-4.49 is High
2.50-3.49 is Medium
1.50-2.49 is Low
1.00-1.49is Very Low

V. RESEARCH RESULT

Design results of Graphic user interface for SBC Exit-Exam System.

1.   Use Case of SBC exit-exam system

Figure 2. Use Case Diagram
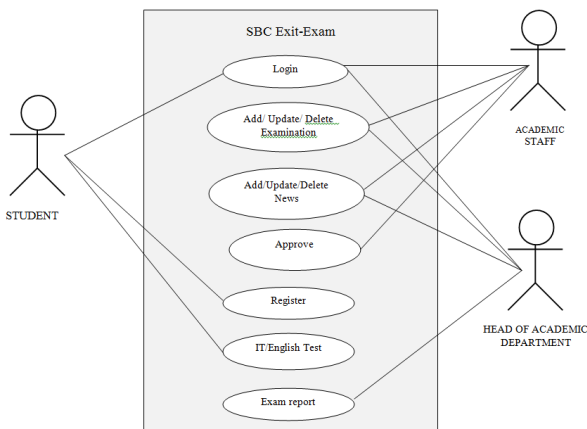
2. Screen of SBC exit-exam system.

Figure 3. The main application screen

The main application screen for Students ,Academic staff and Head of Academic Department
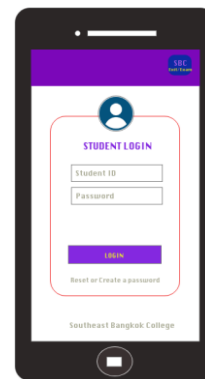

Figure 4. Screen for Login Application

Figure 5. Screen for Examination category selection

Figure 6. Screen for English tests

2. The results of Study the needs of users in designing graphical user interfaces for SBC Exit-Exam system
As shown in Table 1

TABLE I: Show the level of user needs of users in designing graphical user interfaces for SBC Exit-Exam system

	Factors studies	Statistics		Validity/Accuracy
		$\bar{X}$	SD.	
1	The level of expertise in using computers.	4.12	0.43	High
2	The design of screen layout focuses on making buttons, frames and elements look realistic, similar to real things.	4.03	0.43	High
3	The design of the layout focuses on simplicity, without 3D images, making both shadows and colors having same background, and choosing to use various elements that look simple, not striking but colorful.	4.45	0.05	High
4	The design of the layout focuses on showing the depth of things with lights and shadows by imitating the shadows of real things.	4.01	0.43	High
5	The symbol or logo of Application shows the institution's identity.	4.01	0.50	High
6	The function menu buttons are shown with images.	4.12	0.50	High
7	The function menu buttons are shown with images and texts.	4.17		High
8	The content of the examination is clear, legible and concise with easily understanding language and balanced-organizing elements.	4.39	0.06	High
9	The hierarchical navigation system is applied with one homepage and many links to other pages within the system.	4.03	0.87	High
10	Animations, graphics and gimmicks are provided in examination.	4.11	0.83	High
11	Sound-on when pressing each function menu button.	4.01	0.05	High
12	The terminology used in the function menu is familiar to users and easy to understand.	4.35	0.05	High
13	The speed of system processing is fast.	4.03	0.43	High
14	The results of system processing are accurate.	4.23	0.45	High
15	The system can be compatible with all types of computer equipment.	4.15	0.47	High
16	The security system on personal data and access is provided.	4.17	0.47	High
	Overall summary	4.15	0.40	High

VI.CONCUSSION

It was found that most respondents were female (67%) and the results of the assessment on the overall need in the graphic design of user interface model for the SBC Exit-Exam system is in high level with the Average at 4.31. When considering each area above, it was found that the design of the layout focuses on simplicity, without 3D images, making both shadows and colors having same background, and choosing to use various elements that look simple, not striking but colorful, is chosen by the users in first priority with the Average at 4.45, this corresponds to the Research on The User Interface Design for WINWIN Application Using Almost Flat Design, The research found that Experts and user groups were satisfied with the design of user interface at the high level of 4.16 and 4.19, respectively. The standard deviation was 0.48.that the researcher has adopted the concept of "Flat Design" as a minimal style in the interface design and chosen various elements that look simple with legible letters.[10] The content of the examination is clear, legible and concise with easily understanding language and balanced-organizing elements is chosen as the 2nd rank with the Average at 4.39 whereas the terminology used in the function menu is familiar to users and easy to understand is ranked as No. 3 with the Average at 4.35, that the researcher has adopted the concept of "Flat Design" as a minimal style in the interface design and chosen various elements that look simple with legible letters. The content of the examination is clear, legible and concise with easily understanding language and balanced-organizing elements is chosen as the 2nd rank with the Average at 4.39 whereas the terminology used in the function menu is familiar to users and easy to understand is ranked as No. 3 with the Average at 4.35.

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