DEVELOPMENT OF MOBILE APPLICATION FOR PROMOTING SUAN SUNANDHA ROYAL CUISINE

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ABSTRACT

The main objective of this research was to develop a mobile application to preserve and promote Suan Sunandha Royal cuisine using System Development Life Cycle (SDLC) and Waterfall model in its development process. The sample consisted of 378 students of Suan Sunandha Rajabhat University. The data was analyzed and employing mean, standard deviation and percentage. All students who test application prefer to use mobile application for seeking knowledge because they were used to it. The ability of mobile application was made students feel flow among using application.

Introduction

The royal cuisine and culinary culture in Suan Sunandha palace in which the Western culinary culture had combined and invented a modern royal recipe with recipes Thai ingredients for good taste. when elites who live in Suan Sunandha palace tried to adapt the consume culture to reach the western culture standard. Therefore, Suan Sunandha Royal cuisine has uniqueness and outstanding.

At the present time, Suan Sunandha royal cuisine and recipe is new developed for new customer because the charm of Thai Royal Thai food, each one is unique and different from other royal Thai food. Given that, this makes consumer love Suan Sunandha royal taste. Also, Suan Sunandha Royal food has an important identity which is the abundance and freshness of the ingredients in the cooking process, and the process is elaborate and requires a lot of time and manpower to cook. furthermore, elaboration including having a soft taste, not very spicy is mainly. The elements of the Suan Sunandha royal meal was consists of a wide variety of food. In addition, Suan Sunandha royal food is a healthy food that uses Thai herbs and spices as cooking ingredients. Use less fat for cooking Use less meat Focus on vegetables All natural products Making it have high nutritional value and has medicinal properties at the same time (Kularbphettong, Danchaiyaphuma, & Ampant, 2016) ; (Pullphothong, 2013) ; (Promsorn, & Fakkham, 2020).

The evolution of Internet and communication technology has changed the users' information and knowledge behavior. Many users prefer to use searching tools on the Internet such as search engine, website, mobile application etc because users feel free to access online resources

anywhere anytime. (Hyun et.al, 2003) ;(Gaßner, et.al, 2005);(Ertuğrul, et.al, 2016);(Chen, et.al, 2017);(Choe, Kim, & Cho, 2017);(Yuan, 2018)

In this regard, we, researchers, are interested to adopt the mobile application in developing a Suan Sunandha royal cuisine to be supportive preserve wisdom of the Suan Sunandha royal cuisine for encouraging students to interest in the royal cuisine and recipes in Suan Sunandha palace. The objectives of this research were to design and develop a mobile application 'Suan Sunandha Royal cuisine' for smartphones and to study students' mobile application acceptance after using the application.

Literature Reviews

Royal cuisine and culinary culture

Many countrys in the Asian have own culture especially culinary culture. South Korea, China, and Vietnam are the old country in Asia that had their own royal culinary culture. (Lee, 1988); (Jian-jun, 2010); (Chung, Shin, & Woo, 2019); (Lepkowski Ostrum, 2012); (Tseng, & Chen, 2020)

Suan Sunandha Royal cuisine and recipes was first invented in the court of King Rama V (King Chulalongkorn). The Thai royal cuisine set menus of Suan Sunandha Palace was invented by H.H. Princess Saisavali Bhiromya which had the unique of taste. Ingredients of food are freshness and high quality, The cuisine was adaptable as the desire and weather condition in each day.

System Development Life Cycle (SDLC) (Alan, Barbara, & Roberta, 2012).

SDLC is a model for software development in 7 steps;

1. Planning Step
2. Requirements Analysis Step
3. Design and Prototyping Step
4. Software Development Step
5. Software Testing Step
6. Implementation and Integration Step
7. Operations and Maintenance Step

Research Methodology

1. Research Design

This research is a development research where the research has been designed for collect, preserve, and promote Suan Sunandha royal recipe in mobile application using System Development Life Cycle (SDLC) and Water Fall model in its development process .

Therefore, to accomplish the objective of this research, there are six important steps to be implemented. The first step is planning; the second step is to analysis of requirement; the third is to design a mobile application; the forth is to develop an mobile application; the fifth is to deploy a mobile application; the six is to evaluate the mobile of using this mobile application.

Suan Sunandha royal recipe was collected from related research and literature. The consistency of the contents was analyzed by five experts in the field of culinary science and information technology. However, to evaluate the mobile application acceptance and satisfaction of this application, the application, the mobile acceptance and satisfaction for mobile application usage must be assessed by Index of Item-Objective Congruence (IOC) and determine score by five specialists for assurance and validity. The IOC value in each part is more than average (above 0.5 and not over than 1.

This study will focus on Suan Sunandha Rajabhat University undergraduate students. After using mobile application, all students have to check the mobile application acceptance and satisfaction questionnaire. The scores from this questionnaire must be analyzed using statistic methods.

2. Participants

This research is mainly focus on Suan Sunandha royal recipe content management and preservation, the sample group is Thai Suan Sunandha Rajabhat University undergraduate students. The age of samples in this study are in the range of 17-21 years old, and 378 samples are randomly selected

(Krejcie, & Morgan, 1970).

3. Research tools

There are three research tools important for this research: Suan Sunandha Royal cuisine mobile

application and the mobile application acceptance questionnaire.

3.1 Suan Sunandha Royal cuisine mobile application

This mobile application is developed to preserve and deseminate the Suan Sunandha royal recipe to public. The application was designed with graphic. All descriptive functions of mobile application are shown in Table 1

Table 1. Description of Suan Sunandha Royal cuisine mobile application

Figure	Description
	The menu button is used one click to access the content.
	The screen is show more detail about cuisine category.
	The screen is show cuisine menu.
	The screen show recipe and cooking detail.

Figure	Description
	The screen show how to comment on mobile application.
	The screen show detail about comments by users.
	The screen show history of Suan Sunandha Royal cuisine

3.2 Student mobile application acceptance questionnaire

The mobile application acceptance and preference from the application must be measured using the satisfaction index from students. The rating scale is range from 1 to 5. The meaning of each rate is listed below.(Uiphanit, Unekontee, Wattanaprapa, Jankaweekool, & Rakbumrung, 2020)

1.00 – 1.80 = strongly disagree

1.81 – 2.60 = disagree

2.61 – 3.40 = neither agree nor disagree

3.41 – 4.20 = agree

4.21 – 5.00 = strongly agree

Analysis

The data from questionnaire is analyzed by statistical analysis software. All descriptive statistical values is use in this study for interpret the result from data analysis, such as average and standard deviation.

Results

According to the research results, it was found that

Table. 2 Students' mobile application acceptance after using an application.

No	Lists	X̄	Std Dev	Interpreted
	Ease of Use			
1	Mobile application is easy to use	3.34	0.76	neither agree nor disagree
2	Mobile application is easy to understand how to use and not complex	3.62	0.97	agree
3	Mobile application is convenient.	3.51	0.87	agree
	Average	3.49	0.86	agree
	Usefulness			
4	Mobile application can help users to cooking in everyday life	3.55	0.78	agree
5	Mobile application can help users to access the information	3.27	0.84	neither agree nor disagree
	Average	3.41	0.81	agree

From table 2 shows relationships between ease of use, usefulness, and their mobile application acceptance. The ease of use and usefulness intent users to use mobile application for learning Suan Sunandha Royal cuisine. The easy to understand how to use make user feeling good and convenient while using application. Moreover, the easy is an important factor for leading students' mobile application engagement (Gibson, 2019). Therefore, these results indicate that ease of use and usefulness have positive effects towards the mobile application use and acceptance.

Table. 3 Students' satisfaction after using mobile application.

No	Lists	X̄	Std Dev	Interpreted
1	Illustration in mobile application is beautiful, attractive and interesting.	3.55	0.94	agree
2	Font in mobile application is beautiful, attractive and interesting.	3.68	0.80	agree
3	Mobile application can process information correctly.	3.55	0.68	agree
4	Mobile application can response in time.	3.72	0.88	agree
5	Information in mobile application is update	3.68	0.80	agree
6	Overall, I prefer to use mobile application	3.48	0.94	agree

Average	3.61	0.84	agree

From table 3 shows relationships between the presentation and function in mobile application and the satisfaction level of students. the response in time makes students feel flow and flexible while using the mobile application. Also, the beautiful font and update information in a mobile application stimulate students keep using application with attractive and interest. Thus, a mobile application can serve users as an learning material that make more interesting

Conclusion

From the research on development of mobile application for promoting Suan Sunandha royal cuisine, evaluating the efficiency of application development for the three areas of Suan Sunandha royal cuisine found that the assessment of the acceptance of the developed mobile application was found overall ($\bar{X}$= 3.57) and each parts at high level including the ability of mobile application ($\bar{X}$=3.68), stability ($\bar{X}$= 3.53) and color (= 3.51) respectively.

References

[1] Alan D, Barbara H. W., & Roberta M. R., (2012). Systems analysis and design. Hoboken NJ.: John Wiley &

[2] Chen, Y. S., Wong, J. E., Ayob, A. F., Othman, N. E., & Poh, B. K. (2017). Can Malaysian young adults report dietary intake using a food diary mobile application? A pilot study on acceptability and compliance. *Nutrients*, *9*(1), 62.

[3] Choe, J. Y., Kim, J. H., & Cho, M. S. (2017). A comparison of food contents used by official tourism organizations' mobile applications. *Journal of Gastronomy and Tourism*, *2*(3), 203-216.

[4] Chung, H. K., Shin, D., & Woo, N. (2019). A Study on Joseon Royal Cuisine through Sachanbalgi of the Jangseogak Archives-Focusing on Royal Birthday, Child birth, Weddings and Funerals. *Journal of the Korean Society of Food Culture*, *34*(5), 508-533. Educational and psychological measurement, 30(3), 607-610.

[5] Elahi, M., Ge, M., Ricci, F., Fernández-Tobías, I., Berkovsky, S., & David, M. (2015, September). Interaction design in a mobile food recommender system. In *CEUR Workshop Proceedings*. CEUR-WS.

[6] Ertuğrul, D. Ç. (2016). FoodWiki: a mobile app examines side effects of food additives via semantic web. *Journal of medical systems*, *40*(2), 41.

[7] Gaßner, K., Vollmer, B., Prehn, M., Fiedler, M., & Ssmoller, S. (2005, July). Smart food: Mobile guidance for food-allergic people. In *Seventh IEEE International Conference on*

E-Commerce Technology (CEC'05) (pp. 531-534). IEEE.

[8] Gibson, J. (2019). An Introduction to the Psychology of Humor. London: Routledge,

[9] Haseeb, M., Hussain, H., Kot, S., Androniceanu, A., & Jermsittiparsert, K. (2019). Role of Social and Technological Challenges in Achieving a Sustainable Competitive Advantage and Sustainable Business Performance. Sustainability, 11(14), 3811. DOI: 10.3390/su11143811. https://doi.org/10.4324/9780429000959

[10] Hyun, T., Yon, M., Kim, S. H., Kim, N. H., An, S. M., Lee, S. M., ... & Hong, M. K. (2003). Development of a nutrition education website for children. *Korean Journal of Community Nutrition*, *8*(3), 259-269.

[11] Jian-jun, Z. H. A. O. (2010). The Rise of Food Art in Zhou Dynasty from" Yi Yin" and" Eight Rarity". *Culinary Science Journal of Yangzhou University*, (3), 7.

[12] Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities.

[13] Kularbphettong, K., Danchaiyaphuma, P., & Ampant, U. (2016). Developing of E-learning system for Thai cuisine. *Economic and Social Development:* Book of Proceedings, 480.

[14] Lee, S. W. (1988). Study on the food menu in the royal palace of Chosun Dynasty. *Journal of the Korean Society of Food Culture*, *3*(1), 29-49.

[15] Lepkowski Ostrum, H. (2012). Effects of Globalization and Tourism on the Commercialization of Hue Royal Cuisine.

[16] Promsorn, T., & Fakkham, S. (2020). Medicinal plant from royal thai cuisine of Suan Sunandha palace. In international academic multidisciplinary research conference in Malta *2020* (pp. 46-50).

[17] Pullphothong, L. (2013). *Civilized and cosmopolitan: the royal cuisine and culinary culture in the court of king rama the fifth* (Doctoral dissertation, Chulalongkorn University).

[18] Somjai, S., Jermsittiparsert, K., & Chankoson, T. (2020). Determining the Initial and Subsequent Impact of Artificial Intelligence Adoption on Economy: A Macroeconomic Survey From ASEAN. Journal of Intelligent & Fuzzy Systems, 39(4), 5459-5474. DOI: 10.3233/JIFS-189029.

[19] Tseng, P., & Chen, Y. (2020). Making "Chinese Cuisine": The Grand Hotel and Chuan-Yang Cuisine in Postwar Taiwan. *Global Food History*, 1-18.

[20] Uiphanit, T., Unekontee, J., Wattanaprapa, N., Jankaweekool, P., & Rakbumrung, W. (2020). Using Augmented Reality (AR) for Enhancing Chinese Vocabulary Learning. International Journal of Emerging Technologies in Learning (iJET), 15(17), 268-276.

[21] Weking, A. N., & Santoso, A. J. (2020). A Development of Augmented Reality Mobile Application to Promote the Traditional Indonesian Food. *International Journal of Interactive Mobile Technologies*, *14*(9).

[22] Wongcha-Um, P. (2009). *What is Thai Cuisine? Thai Culinary Identity Construction From The Rise of the Bangkok Dynasty to Its Revival* (Doctoral dissertation).

[23] Yuan, Y. (2018, July). Augmenting Food Experience While Traveling Abroad by Using Mobile Augmented Reality Application. In *International Conference on Cross-Cultural Design* (pp. 259-268). Springer, Cham.