Learning of Medicinal Herbs Using QR Codes

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Abstract. Rapid development of information technology today has widened the use of computers as well as mobile phones. With more sophisticated devices is equipped with high resolution color, wireless access and high-speed processing. The current development has evolved with the creation of the portal since the mid-90's and given that the potential of the portal, it has been used by various firms regardless of body governmental or statutory bodies. Various advantages that can be utilized by the use of portals as it is has a dynamic source of information from a variety of sources and various formats. The current study aims to discover effects of QR codes implementation on medicinal herbs learning. The findings of students’ responses revealed that the QR Code facilitate the learning of medicinal herbs, whereby the mean from this analysis revealed that average majority of the students find the learning approach is easy to be employed.

1. Introduction

A mobile tag is a way of displaying familiar visual elements through smartphones and devices that has similar functions [1]. According to Janssen, this two-dimensional bar code can be found anywhere in printed media or virtual media whereby the users are able to scan the code using the camera on the smartphone and the code will continue to display to the user about the inside information online scanned. This two-dimensional code bar is better known as the QR Code. This development of this technology has presented a two-dimensional code that is also known as the QR Code was created and developed rapidly [2]. QR Code is used as a guide to identifying sign, help access information of an object and also work for intercept in achieving a portal or information and is used in various fields including logistics, management and so on. Although there are many advantages of the QR Code but its use in the field education is still preliminary [3]. According to Syed Ardi & Zadatun (2008), the use of technology in education is inevitable due to the sophistication of technology [4].

Along with the rapid development of technology today, various ways or medium that can be used to provide information about knowledge to something [5]. Various mediums have been used for making it easier for you to access information is by using the web portal and the latest by using a two-dimensional code type QR Code as an intermediate medium to retrieve information. The development of technology has brought a new revolution in a whole world sophisticated, especially in education in Malaysia. These technologies have
affected people in every aspect of life. The use of computer has also become very important tool and a big influence on daily basis. This is further enhanced by the existence of a portal for education [5]

A portal is a website or service that offers a variety of resources and services such as Electronic mail (E-mail), forums, search engines and purchases byonline or Electronic commerce (E-commerce) service. There are also news portal, research and statistics, discussions, newsletters, online tools, and many other services related to a particular industry [6]. According to Maloney (2004), websites or portals can be defined as a web-based tool that provides an interface where it can be customized to display the collected information from various sources [7]. According to him, the portal was implemented as an interface based on software help that provides access integrated into the source of relevant information and services. Implementations of these portals are vary in terms of the application framework, tools and programming languages. The use of the portal has begun since the mid-90's and started to grow rapidly [8]. However, lately, with the presence of the use of smartphones, tablet computers and the advancement of technological advances communication, there is growing interest in the use of easy tags instead of using a kind of two-dimensional code named QR Code in various fields including in education.

However the implementation of QR code in higher education is low, and it is also less exposed in the context of teaching and learning [3]. The use of mobile tags can further promote activity and improve motivation to students towards a field [9]. Previous studies indicate that using mobile tags can have a positive impact to the student's interest in doing something but it depends on the benefit and satisfaction of the tool itself. However educators have realized that there is growing interest in use of mobile tags for educational purposes [4].

2. Methodology
This study is employed a survey involving 70 respondents from a public higher institution in Malaysia. Convenience sampling method was conducted for data collection. Respondents in this study were required to use camera and QR software in their smartphones or tablets to scan the QR Code found on the printed source determined. The mobile device will interpret the QR Code to retrieve the website that contain information about herbs required and information will be obtained in the form of multimedia information (QR Code has been produced will be placed on the printed information provided in accordance with the circumstances). On each face that has been accessed by the user, there is complete information about the herbs that they intend to know and its importance in daily life

3. Result and Discussion
The objective of this study was to determine the ease of use of the QR code for medicinal herbs learning by the students in a public university in Malaysia. The overall frequency was calculated from the data collected in the questionnaires distributed. Statistical Package for the Social Science (SPSS) 22 was used to analyse the descriptive frequency of the data on students’ agreement on the posited statement on the use of QR code for medicinal herbs learning.

| The Use of the QR Code for Herbal Learning | Sangat Setuju | Setuju | Neutral | Tidak Bersetuju | Sangat Tidak Bersetuju | Min |
|-------------------------------------------|--------------|--------|---------|----------------|----------------------|-----|
| 1. Saya mendapati sistem pembelajaran Kod QR herba kesihatan ini tidak sukar untuk digunakan. I find that this QR Code for herbal learning system is not difficult to use. | N=65 (92.9%) | N=5 (7.1%) | N=5 (7.1%) | N=5 (7.1%) | N=5 (7.1%) | 4.93 |
| 2. Pembelajaran menggunakan sistem pembelajaran Kod QR herba kesihatan ini mudah untuk saya. Learning using QR Code for herbal learning system is easy for me. | N=61 (87.1%) | N=0 (12.9%) | N=0 (0%) | N=0 (0%) | N=0 (0%) | 4.87 |
|   | Statements                                                                 | N=47 (%) | N=23 (%) | N=0 (%) | N=0 (%) | N=0 (%) | Mean |
|---|---------------------------------------------------------------------------|----------|----------|---------|---------|---------|-------|
| 3. | Berinteraksi dengan sistem pembelajaran Kod QR herba kesihatan sering tidak mengecewakan. Interacting using QR Code for herbal learning system often does not disappoint me. | N=50 (84.3%) | N=10 (14.3%) | N=1 (1.4%) | N=0 (0%) | N=0 (0%) | 4.67  |
| 4. | Saya merasa mudah menggunakan sistem pembelajaran Kod QR herba kesihatan dalam mendapatkan maklumat tentang herba kesihatan. I find it easy to use the Herbal QR Code learning system to get information on health herbs. | N=50 (84.3%) | N=10 (14.3%) | N=1 (1.4%) | N=0 (0%) | N=0 (0%) | 4.83  |
| 5. | Sistem pembelajaran Kod QR herba kesihatan ini tidak kaku dan fleksibel untuk digunakan. Herbal QR Code learning system is not rigid and flexible to use. | N=50 (84.3%) | N=10 (14.3%) | N=1 (1.4%) | N=0 (0%) | N=0 (0%) | 4.83  |
| 6. | Mudah bagi saya untuk mengingat bagaimana untuk menggunakan sistem pembelajaran Kod QR herba kesihatan. It is easy for me to remember how to use the code learning system QR herbs. | N=50 (84.3%) | N=10 (14.3%) | N=1 (1.4%) | N=0 (0%) | N=0 (0%) | 4.86  |
| 7. | Berinteraksi dengan sistem pembelajaran Kod QR herba kesihatan adalah mudah. Interacting with QR code learning system is easy. | N=50 (84.3%) | N=10 (14.3%) | N=1 (1.4%) | N=0 (0%) | N=0 (0%) | 4.81  |
| 8. | Interaksi saya dengan sistem pembelajaran Kod QR herba kesihatan ini adalah jelas dan mudah difahami. My interaction with the code learning system QR herbs are clear and easily understandable. | N=50 (84.3%) | N=10 (14.3%) | N=1 (1.4%) | N=0 (0%) | N=0 (0%) | 4.94  |
| 9. | Saya mendapati tidak banyak usaha diperlukan untuk menjadi mahir dengan menggunakan sistem I find that there is not much effort required to become proficient by using system. | N=50 (84.3%) | N=10 (14.3%) | N=1 (1.4%) | N=0 (0%) | N=0 (0%) | 4.83  |

Analysis from the data revealed that the students perceived medicinal herbs learning through QR codes is highly facilitating, interactive and beneficial for their learning process. Generally, the students feel that the QR codes are easy to use and suitable for the learning of medicinal herbs. From the data obtained, the highest mean of students’ agreement is in the item “My interaction with the code learning system QR herbs are clear and easily understandable” (M=4.94) and “I find that this QR Code for herbal learning system is not difficult to use.” (M=4.93). Analysis from the data showed that the students believed that the use of QR codes for medicinal herbs learning is highly manageable and easy to use. Instructions presented on how to use QR codes for the learning is found to be clear and understandable for the students. Students responses in the aforementioned statements on ease of use of QR codes’ is also correlated with the item “Learning using QR Code
for herbal learning system is easy for me” whereby majority of the respondent expressed their high agreement (87.1%).

In terms of practicality and feasibility of QR codes of medicinal herbs learning, majority of the respondents agreed that the application is very useful and has the ability to facilitate their learning process. In the item “Interacting using QR Code for herbal learning system often does not disappoint me.” and “Herbal QR Code learning system is not rigid and flexible to use.”, analyses from the data obtained revealed a higher mean (M=4.83) for the items. The results reflected students’ responses on the ability of QR codes in improving their learning in the most useful and easy way. In addition, the statements also revealed that the use of QR codes for medicinal herbs learning is flexible and not disappointing.

4. Conclusion

The findings of students’ responses revealed that the QR Code facilitate the learning of medicinal herbs, whereby the mean from this analysis revealed that average majority of the students find the learning approach is easy to be employed. From this finding, researchers have found that every herb has a total of over 80% acceptance by the student. This is generally reflected by the students’ agreement on the items in the questionnaires. The findings of this study have also shown that the use of the QR Code can affect the interests of respondents in learning. This is because most respondents stated that they are interested in this learning system based on number percentage and mean of the interest items given in the items in questionnaire. Therefore it is concluded here that learning using the QR Code system against herbs can have a positive impacts on the respondents’ knowledge on medicinal herbs.

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