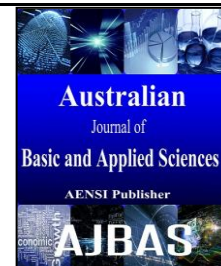




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Developing a Mobile Learning Application Framework of “Jamak Qasar Apps” using ADDIE Approach

Nurkaliza Khalid, Hailruddin Jaafar, Rafiza Kasbun

International Islamic University College Selangor (KUIS), Department of Computer Science, Faculty of Science and Information Technology, 43600, Bandar Seri Putra, Malaysia

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ABSTRACT

Background: This study presents the steps taken to produce a mobile learning application framework to learn solat for which is named “Jamak Qasar Apps”. Mobile learning application is utilized because the framework enables seamless access between all the involved actors. The ARCS model is also integrated into the mobile learning application framework in order to cater the problems faced by most e-learning users which are to be continuously engaged in the mobile learning process. **Objective:** The objective of this study is to develop a mobile learning framework based on ADDIE approach for users. **Results:** In this paper a systematic, research framework using ADDIE (Analyze, Design, Develop, Implement, and Evaluate) approach is proposed. **Conclusion:** Overall, this paper discussed the purposed mobile learning framework that would stimulate and maintain users’ motivation in using the proposed prototype of the “Jamak Qasar Apps”.

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INTRODUCTION

Mobile learning application framework enables seamless access between all the involved actors. The learner can review the learning object and interact with the instructor and other learner from the portable computer (PC) while being in the classroom, from his mobile phone while travelling or from his laptop when at home. The use of portable computing devices (such as PCs, PDAs, laptops and smart phones) with wireless networks enables mobility and mobile learning thus allowing users to extend the boundaries of teaching and learning to spaces far beyond the traditional classroom. The current mobile devices evolution also increases the number of mobile applications being developed and among them the mobile learning applications. In addition, advancements in the current 3G mobile hardware and software platforms also allow the running of faster and richer applications. As such, the growth in mobile technology development has also lowered the prices for mobile devices which allows them to be available to the majority of people (Kinshuk, Frederique, Qing Tan, & Frederick, 2012). The increase in the use of mobile devices encourages the use of mobile learning as a learning platform. Furthermore, several studies (Al-Fahad, 2009; Baya’

a & Daher, 2009; Chen & Hsu, 2008; Evans, 2008; Lu, 2008) have also integrated mobile learning application to enhance the learning experience.

Motivation is an important aspect of instructional strategy. Motivation ensures that the users keep on using the learning objects after the initial usage. Since the users of mobile learning applications cannot be controlled like the students of traditional classroom environment, therefore motivation is needed to sustain the users of such applications. Despite its importance, however, most developed mobile learning applications have neglected the motivation aspect. This encourages retention among users especially if the learning content is complicated. Therefore, this study proposed to integrate the ARCS model into a mobile learning application framework in order to cater the problems faced by most e-learning users which are to be continuously engaged in the mobile learning process. According to Shih (2007), mobile learning applications should create an enjoying learning environment since the mobile learning applications lack the luxury of face-to-face interaction with its audience. The ARCS is suitable because the main goal of ARCS is to build up and also to retain the motivation. The rest of the paper is structured as follows: the research background is explained in

Corresponding Author: Nurkaliza Khalid, Department of Computer Science, Faculty of Science and Information Technology, International Islamic University College Selangor (KUIS), 43600, Bandar Seri Putra, Malaysia.
E-mail: nurkalizakhalid@gmail.com

Section 2, the ARCS Model of Motivational Design is discussed in Section 3. The methodology and proposed framework that has been used for the application is discussed in Section 4. Finally, in the last section, the conclusion of this study and future work of the application in this area is stated.

Research background:

This study provides an alternative way to learn the qasr and jamak prayer techniques for all Muslims. It focuses on the 2D animation as a way of learning the qasr and jamak prayer technique. This mobile learning application is suitable for all users but the main targets of users are young travelers from 10 years old to around 28 years old who are not used to perform the qasr and jamak prayer. In the Al-Quran it is also stated that qasr and jamak prayer could be performed as follows:

“And when you (Muslims) travel in the land, there is no sin on you if you shorten As-Salah (the prayer)...” (Al-Nisa, 4:101).

As for jamak (combining) prayer means the worshipper combine or join up two prayers, Zuhur and ‘Asar, or Maghrib and ‘Isha’, at the time of the earlier or later of the two solah (Zuhur and ‘Asar at Zuhur or ‘Asar; Maghrib and Isya’ at Maghrib or at Isya). It is stated that Anas ibn Malik (radiallahu’anhu) said: “The Prophet (sallallahu ‘alaihi wa sallam) joined Maghrib and ‘Isha’ prayers when travelling.” (Al-Bukhari, 1108). Hence, the development of this mobile learning application enables all users to interact and understand how to learn both qasr and jamak prayer. Besides that, this mobile learning application can also be used to introduce the solat technique to the other Muslims who are not aware of it.

According to Rahman (2008), solat has to be carried out in the manner of solat advocated by the prophet (Nabi Muhammad S.A.W). However, most of the guides for learning the solat technique are available in written form such as books which tend to encourage negative outcomes from readers. These negative outcomes include readers being bored and readers being not interested to learn solat. Introducing the solat process involved through 2D animation is an effective way to make it more interesting and engaging. Utilizing the 2D animation is intended to connect users with the application and at the same time create a more fun learning environment. Therefore, this study intends to develop a mobile application framework that integrates 2D animation with ARCS model of motivational design to cater the limited existing materials for learning solat.

Arcs model of motivational design:

John Keller’s ARCS Model of Motivational Design contains four main steps for promoting and sustaining motivation in the learning process. The steps are: Attention, Relevance, Confidence, and

Satisfaction (ARCS). According to Keller (1983), ARCS model is a problem solving approach for designing the motivational aspects of learning environments to stimulate and sustain students’ motivation to learn. The mobile application utilizes the ARCS model for two reasons. First, the ARCS model has been widely used and validated by both teachers and trainers in numerous learning organizations such as elementary and secondary schools, colleges, and universities, and in adult learning settings in corporations, government agencies, nonprofit organizations, and military organizations. In other words, in virtually every setting in which there is a requirement for people to learn. It has also been used around the world on virtually every continent, and has been used extensively in Asia, Europe, and Latin America (Keller, 1983). The second reason is the ARCS model has the ability to enhance the interaction between the learning materials, and the learners as mentioned by Ramirez, Rizvi, Smith, and Terrazas (2009).

A. Attention:

Attention refers to the interest displayed by learners in understanding in the concepts or ideas being taught. According to John Keller, there are three ways to grab attention which are perceptual arousal or the use of surprise or uncertain situations, inquiry arousal or offering challenging questions and/or problems to answer/solve, variability which amplifies on uses a variety of resources and methods of teaching.

B. Relevance:

Attention and curiosity are necessary but just aren’t enough conditions for motivation. When a learner sees that there is a point to his/her learning experience, he becomes more motivated. It is necessary that a learner will perceive that the learning experience is in sync with their goals and are somehow connected to them, in any aspect. The 3 major strategies Keller presented are: goal orientation which emphasize on telling the future usefulness of gained knowledge, motive matching which is the understand learner’s motives, provide them choices and familiarity which introduce role model or trying to match content to learner’s skills and past experiences.

C. Confidence:

Confidence arises when course requirements and objective are clear. Confidence means learners believe that success is achievable. It establishes positive expectations for achieving success. The effort put forth toward reaching a goal added with motivation is what dictates the confidence level of the student.

D. Satisfaction:

Attentive learners that are interested in the content and are moderately challenged will be motivated to learn. The next step now would be to make that motivation last. This will be satisfied by the fourth condition of motivation which is satisfaction (Lee & Kim, 2012). Keller suggests three main strategies to promote satisfaction: Intrinsic reinforcement by encouraging and support intrinsic enjoyment of the learning experience, extrinsic rewards by provide positive reinforcement and

motivational feedback, equity by maintain consistent standards and consequences for success.

Conceptual framework for designing and developing mobile learning application:

The framework was used for structuring the overall design of the application. The results of the development process are based on the ADDIE model with respect to the subsequent four phases after analysis that consisted of the design, development, implementation and evaluation as indicated in Figure 1.

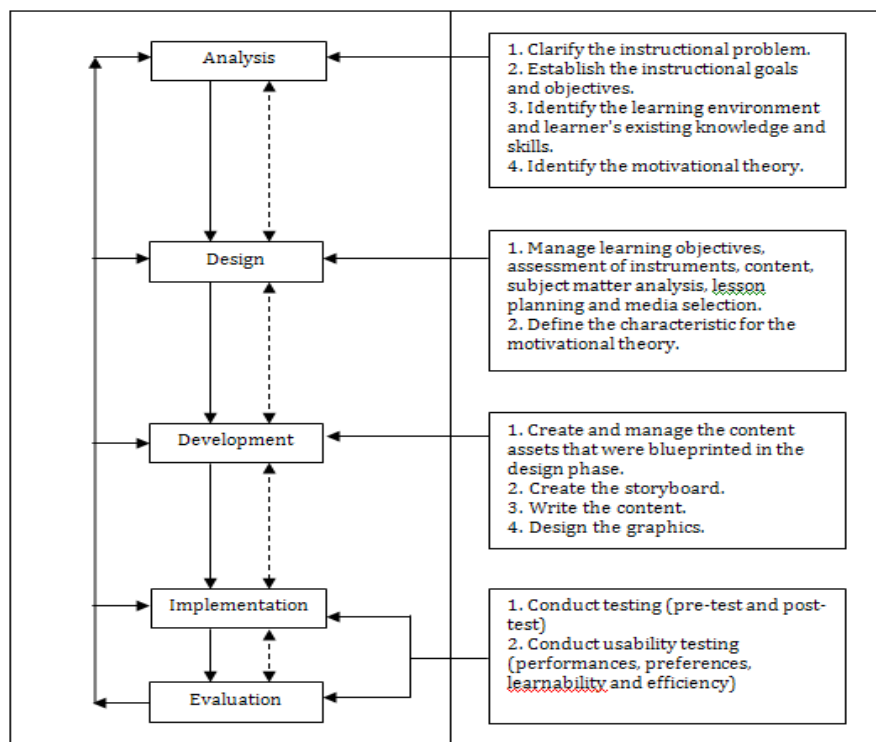


Fig. 1: Development Framework Model of Mobile Learning Application.

Development of media should be done using the right development model. One model that is often used in the research is ADDIE. The ADDIE Model is a framework that lists generic processes that instructional designers and training developers use which represent a guideline for building effective training and performance support tools in five phases: analysis; design; development; implementation and evaluation as below:

Analysis:

The analysis phase comprises of a set of instructional goals and objectives prepared based on a selected set of competencies, identifying the learning environment and learner's existing knowledge and skills. The target audience of this application is being analyzed and young travelers from 10 years old to around 28 years old are chosen for this research. In order to obtain specific data requirement for the application, observing, interview

and questionnaire session has been conducted at 2 selected "Rest and Services" location along the north-west highway in Malaysia. In the sessions, the users were asked about the functionality and design specification of the developed prototype of mobile learning application.

Design and Development:

In the design phase, learning objectives for the modules are prepared, media in which learning material would be presented is selected, and instructional methods are chosen for different learning units or modules. The outcome of design phase is converted into instructional materials and procedures in the development phase. The ARCS model of motivational design is also being implemented at this stage. In order to design "Jamak Qasar Apps", this study focused on the user responsive control perspective. In accordance to the relevance step, responsive control are important in

order to give user an immersive feeling thus creating an enjoyable experience (Bujang & Riaz, 2012). In “Jamak Qasar Apps”, users are allowed to choose desired content which divided into four categories (Solat Jamak, Solat Qasar, Solat Jamak Qasar, and also definitions) which are as in Figure 2. The colors and designs used in the developed prototype are also following the ARCS which are as in Figure 3.



Fig. 2: Topic breakdown to allow users to choose desired content in the developed prototype.

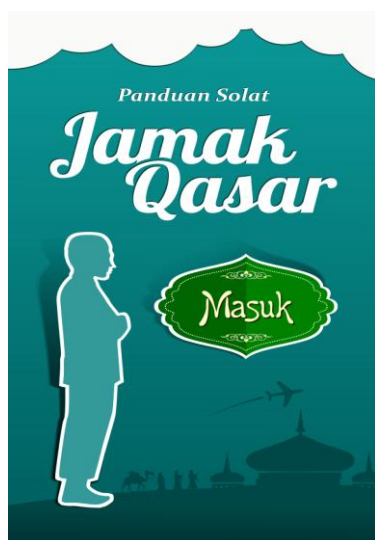


Fig. 3: Use of color to establish relevance and use of relevant graphics to establish attention in the developed prototype

Implementation and Evaluation:

The materials and procedures are used by actual learners in the Implementation phase. The users and the instructional system are given a test in the evaluation phase to decide whether revisions are necessary, in which case the process would be repeated with the next version of instruction. The test

criteria will cover user interface, interactivity and the content of application.

Discussion and conclusion:

The intent of this working paper is to discuss the proposed framework of a mobile learning application in daily setting and how they can benefit users. These environments allow users to engage and experiment with various learning contexts as well as to develop their own learner identity. As such, the new introduced environment will benefit both educators and students in terms of insight into informal, tacit learning processes (McLoughlin & Lee, 2010).

Nowadays, there are numerous e-learning resources roaming around the educational sector. Some of these resources employ John Keller’s ARCS motivational model as their learning pedagogy, however, to the best of our knowledge few to none have tried to apply the ARCS model into a mobile learning application. Due to this reason, the concept of mobile learning seems to be an interesting but not a very well developed in introducing an innovative approach within technology-enhanced learning. Mobile learning applications have the potential to provide a different and exciting learning experience for users. Therefore mobile learning application should be given the opportunity to offer their benefits in the learning process. Future works include developing the prototype and testing on the usability of the prototype to enhance its capability to motivate users to keep on using mobile learning as a new type of learning.

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REFERENCES

- Al-Fahad, F.N., 2009. Students’ Attitudes and Perceptions Towards the Effectiveness of Mobile Learning in King Saud university, Saudi Arabia, The Turkish Online Journal of Educational Technology, 8(2): 111-119.
- Baya’a, N. and W. Daher, 2009. Learning Mathematics in an Authentic Mobile Environment: The Perceptions of Students. International Journal of Interactive Mobile Technologies, 3: 6-14.
- Bujang, M.N.B., R.P.M. Riaz, 2012. M-Jako Iban: A mobile Application to Introduce Iban. IEEE Symposium on Humanities, Science and Engineering Research, pp: 1177-1181, IEEE.
- Chen, C.M. and S.H. Hsu, 2008. Personalized Intelligent Mobile Learning System for Supporting Effective English Learning. Educational Technology and Society, 11(3): 153-180.

Evans, C., 2008. The Effectiveness of m-Learning in the Form of Podcast Revision Lectures in Higher Education, *Computers and Education*, 50: 491-498.

Keller J.M., 1983. Development and Use of the ARCS Model of Motivational Design. Enschede, The Netherlands: 24 pages.

Kinshuk, C.P. Frederique, Qing Tan, A.N. Frederick, 2012. The 5R adaptive learning content generation platform for mobile technology. *IEEE Fourth International Conference on Technology for Education*, pp: 132-137, IEEE.

Lee, J., Y. Kim, 2012. Development of Web-based Courseware Applied ARCS Model. *IMACST*, Volume 3 Number 1.

Lu, M., 2008. Effectiveness of Vocabulary via Mobile Phone, *Journal of Computer assisted Learning*, 24: 515-525.

McLoughlin, C., M. Lee, 2010. Personalised and self regulated learning in the Web 2.0 era: International exemplars of innovative pedagogy using social software. *Australasian Journal of Educational Technology*, 26(1): 28-43. Retrieved Mac 8, 2015, from <http://www.ascilite.org.au/ajet/ajet26/mcloughlin.html>.

Rahman, U.Z.A., 2008. *Formula Solat Sempurna*. Sri Damansara, Kuala Lumpur, Telaga Biru Sdn. Bhd.

Ramirez, R., M. Rizvi, C. Smith, O. Terrazas, 2009. The Application of the ARCS Model to Four Different Instructional Units.

Shih, Y., 2007. Setting the New Standard with Mobile Computing in Online Learning. *International Review of Research in Open and Distance Learning*, Volume 8 Number 2.