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THE CONCEPTUAL FRAMEWORK FOR LEARNING ARABIC VOCABULARY THROUGH EDUCATIONAL DIGITAL GAME

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Abstract*: An effective teacher knows the form of technology that can be used in the classroom to help improve their students' learning. They know what the best tools are, and how and when to use them. Digital game-based learning is a recommended approach which transforms the process of teaching and learning to be more interesting, effective and fun. It has the ability to encourage learners to embrace the challenges and not afraid of failure, create cooperative learning, develop personal responsibility and motivation to succeed. Therefore, this paper attempts to propose an instructional model to develop an educational mobile game application. In order to differentiate between edutainment and entertainment, the educational element must be integrated during the development of the educational game, hence, this paper describes the important requirement for developing the educational mobile game application for a course. This paper briefly describes the proposed model which consists of three parts; input, process, and output. The concept and model proposed may be significant for both instructional designers, program designers, and language practitioners. This paper provided a way of designing an effective digital game which integrated educational elements to improve students' achievement and performance.*

Keywords: *Digital Game-Based Learning, ADDIE, Arabic Language, Mobile Learning*

Introduction

The teaching of Arabic has continued to grow in every level of education in Malaysia. This is evident in the implementation of the JQAF program in primary schools, the Dini Curriculum in secondary schools as well as the provision of Arabic proficiency courses and Arabic language

program in higher learning institutions. This leads to the abundance of Arabic language classes in the country. In addition to carrying out Arabic language classes, some of these institutions organize seminars and workshops to develop and improve Arabic language proficiency in the country.

Consequently, the number of Arabic language learners in various levels has increased over the years (Nafi et al., 2017). In the meantime, issues concerning Arabic proficiency as a second language or foreign language remain unresolved despite countless phases of changes over the years (Hassan & Zamri, 2012) where the number of proficient Arabic speaker has long become a topic of never-ending debate (The et al., 2009) and that students' performance and proficiency in Arabic at all tiers of education are still below expectation (Zawawiet al., 2016).

Language acquisition contributes to the measurement of language proficiency for students (Zunita et al., 2016). In this regard, the main focus on the teaching of Arabic in Malaysia, as stated in the Standard Arabic Curriculum for primary school is on the mastery of four language skills which are reading, writing, listening and speaking.

As mentioned, Malaysian students still demonstrate unsatisfactory performance in the Arabic language subject at all levels of education. One of the reasons may be the lack of vocabulary (Nyikos et al., 2014) as the mastery of vocabulary is essential for functional language proficiency (Groot, 2000). Vocabulary mastery is the most important factor in language acquisition of a first, second or foreign language (Thornoury, 2002). Vocabulary becomes a crucial component in language learning (Moskovsky & Alrabai, 2009) as it applies to all four language skills; listening, speaking, reading and writing (Rinaldi, 2012). Thus, acquiring vocabulary is of utmost importance as the lack of vocabulary could limit communication while the lack of grammar could only affect the fluency of the communication as grammar is only a secondary factor. Therefore, the wrong choice of words could limit comprehension (Tight, 2010) and the use of accurate lexical components could make a sentence be understood even if it is pronounced incorrectly.

The efficacy of teaching Arabic language by using teacher-centered methods where teacher merely lists Arabic words and their lexical meaning for students to memorize is somehow arguable (Norman, 1988). In other words, this traditional method only dictates students to make a list of new words so that one day they could look them up, learn and memorize them (Sahrir, 2011). This, in return will make students become highly dependent on their friends and teachers in learning Arabic vocabulary (Noor et al., 2016), rather than acquiring the words themselves through activities.

The evolution of game-based learning approach allows students to be engaged in Arabic language learning. In the context of education, a mobile game application is a game-based learning approach that could potentially enhance the vocabulary competency among non-native Arabic language learners. In order to ensure the effectiveness of mobile game applications, several elements should be incorporated during the design and development phase. Therefore, this conceptual paper discusses the essential elements that should be incorporated in the development of mobile game application in order to sustain the effectiveness of the teaching and learning process.

Problem Statement

Vocabulary acquisition is the most challenging task among students. Majority of Malaysian students do not reach satisfactory level. 2000 of vocabulary are needed in order to have 80% mastery of language skills (Schmitt, 2000). Several studies attempt to measure the level of mastery of vocabulary among students. According to Saifuddin (2002), Zawawi, Mohd Suki and Abd Raof (2004), Rahim (2009), and Noor, Yusoff, Yasim, and Kamarudin (2016) the level of Arabic vocabulary among primary and secondary students are moderate and has not reached a satisfactory level. This factor gives negative impact to the student's academic achievement (Noor et al., 2016) and hinders mastery of language skills (Daud, et al., 2014; Hat et al., 2017). On the other hand, university students also suffered from similar problem due to fewer usage of Arabic vocabulary and bad attitude which led to failure in Arabic language course (Sahrir M. S., 2011). In addition, the average size of vocabulary among university students are still below the recommended level (Zailani et al., 2016; Ishak & Arifin, 2016).

The traditional way to introduce new vocabulary to students is by using translation method (Harmer, 2015; Lubis, 2009). However, this method does not create interaction between students and the words learned. The students can only absorb the meaning and do not understand the function of the vocabulary. In addition, students are unable to use the knowledge in a real situation very well (Lubis, 2009). An innovative approach in vocabulary learning is needed to enhanced teaching and learning process, improve knowledge and skills and complement the teaching methods that are constantly changing over time (Harun et al., 2015; Yasim et al., 2016). In order to encourage the students in learning Arabic vocabulary, an interesting learning strategy should be implemented (Noor et al., 2016) by learning independently and actively using electronic materials around them (Samah, 2017).

Implementing technology in education especially in learning Arabic language is still new and limited. Mohd Feham (2006) stated that Arabic language is merely following the trend in using instructional technology rather than finding and creating new invention and innovation. The current teaching and learning process still uses the white board to explain lesson to students (Samah, 2009). The use of instructional technologies such as computer assisted language learning, web-based learning, e-learning in Arabic classroom is still underutilized among selected schools (Ismail Z. , 2008) and universities (Zainuddin, N. & Sahrir, M. S., 2015).

There are several studies on computer-based technology in learning Arabic language. Janudin Sardi (2009) investigated a medium to facilitate students in learning Arabic syntax by developing multimedia application, Mohd Zulkhairi Abdul Hamid (2012) designed and developed multimedia prototype as an effective and fun alternative method of learning Arabic rhetoric, a virtual Arabic learning tool prototype was developed by Sahrir et al. (2013) to enable teachers and students to access new environment of teaching and learning process, an online Arabic courseware was developed by Nurkhamimi Zainuddin (2014) to facilitate university students in learning Arabic vocabulary, Norhayati Che Hat et al. (2014) investigated the effectiveness of using animation in learning and teaching Arabic language and a special website integrated with multimedia element such as texts, audio, pictures, and videos was developed in learning Arabic for tourism purpose (Ghani, 2016).

In this modernized era, smartphones offer the greatest potential for such invisible integration of technological hardware into language learning. Mobile applications are designed to be used in mobile devices, thus enabling learners to carry the applications to different places. Mobile application can get rid of the constraints of time and space, people can study anywhere and

anytime they want, according to their study needs. Mobile apps are the most powerful communication medium as it can act as a learning device despite its technical limitations. With such a learning device, the learner controls the learning process and progress in his own space based on his cognitive space. Today, the mobile and communication technology give social impact in our daily living.

Therefore, a digital game-based learning approach was suggested (Prensky, 2001; Sahrir, 2011; Hamzul, M. et, al., 2015) as it benefits the students in increasing their learning attitude, motivation and learning achievement (Han Yu Sung & Gwo Jen Hwang, 2013). Moreover, learning vocabulary through mobile game application embedded with various multimedia elements essential such as images, sound and texts, help students to memorize meanings, pronunciation of foreign words (Kalyuga et. al, 2013; Agca et. al, 2013). This variety of elements exceeds by far the normal method of teaching. Sound train listening and pronunciation and images on which visual memory is based (Ramlan, 2016).

Games and Learning

Many researchers and educators constantly argue on the effectiveness of traditional teaching methods in this era which they believe do not evoke students' love in language learning, leads to a low quality of learning and the formation of negative trends. Game-based learning (GBL) is a new model of electronic learning (e-learning) which offers great benefits in teaching and learning process (Prensky, 2001). Game-based learning is a type of game-play that has been employed in the traditional classroom in order to enhance active learning processes and active problem-solving. It also has been defined as a learning strategy that focuses on achieving the particular objectives of given educational content through the use of games (Kim et al., 2009). Salen and Zimmerman (2004) defined a game as a system in which players engage in an artificial conflict, defined by rules, which results in a quantifiable outcome.

Numerous studies have attempted to explain the benefits and usefulness of computer game by using game-based learning approach in learning and teaching activities. Many studies have proven that games are good learning tools that can help to motivate learners and retain their active participation in learning activities (Alessi &Trollip, 1984; Baid & Lambert, 2010; Kirikkaya, ISERI & Vurkaya, 2010; Sahrir, 2011; Hamzul & Nik Mohd Rahimi, 2015). Previous research has shown that game-based learning approach is one of the most effective methods to drive students' motivation in learning activities (Papastergiou, 2009; Dickey, 2010; Sahrir, 2011; Hamzul, & Nik Mohd Rahimi, 2015). Besides, based on research conducted by Caroll (1982), computer games are able to trigger motivation as they provide the learners with adventure and challenge, as well as fresh and novel learning experiences.

In order to retain the learning engagement and motivation in learning, several scholars have highlighted several game-based learning features. The summary of game features identified as keys to player engagement is tabulated in the table below.

Study	Game Features
Malone (1981)	Fantasy (pleasurable content), control, curiosity, collaboration, competition.
Bowman (1982)	Clear task, identifiable roles and responsibilities, player choices, balancing player skills and challenges.

Prensky (2001)	Rules, goal and objectives, feedback, challenge and competition, interaction and an immersive storyline
Garris et al. (2002)	Fantasy, rules/ goals, sensory stimuli, challenge, mystery, control.
Sweetser & Wyeth (2005)	Concentration, challenge, skills, control, clear goals, feedback, immersion and social.
Dumbleton (2007)	Engaging narrative, graduated challenge, consistent game world, intuitive interface, player agency, clear feedback
Bober (2010)	Challenge, fantasy, feedback, goal, sensory stimuli.
Clark & Mayer (2011)	Goals, essential to game progress, instructional strategies, guidance and structure, manage complexity, relevance salient.
Plass et al. (2015)	Game mechanics, visual aesthetic, narrative design, incentive system, musical score.

Table 1: Summary of Game Features Identified as Key to Player Engagement

Integrating Pedagogy, Game-Based Learning Approach and Instructional Design

Game-based learning approach in Arabic language learning in Malaysia is still in the developing stage and need many improvements. Many researchers and educators employ game-based learning approach as an initiative to facilitate students, ensure students' excitement in language learning, retain their motivation and improve their achievement. Therefore, there is no standard procedure in combining the two component (Prensky, 2001) and there is no agreement on the issue of merging these components (Hamzul & Nik Mohd Rahimi, 2015). However, in order to differentiate between educational game and entertainment game, pedagogical elements should be integrated into game-based learning approach so that the learning outcomes are achieved, and at the same time, students enjoy learning in their class. Thus, three main components in developing a mobile game application for learning Arabic vocabulary are discussed in this conceptual paper. The components are pedagogy, game-based learning elements and instructional design model.

Pedagogy

The translation and memorization methods are still dominant in teaching Arabic, rather than the interactive teaching methods (Samah, 2009). This has negative impacts on students' proficiency because these methods will not help students to master language skills and will discourage them from being active and interactive in the classroom. Technology is an integral part of our lives as most of the students are digital natives who rely heavily on technology to facilitate their daily work and affairs (MyMetro, 2015). Thus, the use of modern technology as educational materials could increase students' motivation to learn Arabic language and instil the concept of their own learning environment. (Nasir et al., 2016). The first thing to do in order to ensure the effectiveness of the teaching and learning process is to determine the learning objectives and learning outcomes. In addition, teachers also need to design effective learning contents that can attract students as well as guide them to focus on essential contents. Not just that, teachers should also pay attention to various effective ways that can be used to deliver

learning content and messages to students. Among the ways that teachers can use to deliver the teaching contents are by using printed or multimedia materials. It is believed to be effective because text is the most effective teaching materials. Furthermore, teachers need to ensure that the materials are achieved the desired goals by providing summative assessments. Teachers should have indicators and rubrics to measure the student's achievement and determine whether the learning outcomes have been achieved.

Digital Game-Based Learning

Many studies have attempted to measure the effectiveness of digital game-based learning. Digital game-based learning is one of the ways to encourage students to learn Arabic vocabulary through active participation in the teaching and learning process. This method helps students to boost their motivation and interest in language learning (Lee & Hammer, 2011). It will also provide teachers with more interesting and less than ordinary tools that could guide and reward students as well as help them to retain their engagement in the classroom. Therefore, this study uses the five main game features highlighted in Bober (2010). The descriptions of each feature are presented in the table below:

Game Elements	Description
Goals	Clear aims that are meaningful and achievable but stretch the learner's abilities.
Challenge	A test of the learner's skills, set at a level to stretch their abilities.
Fantasy/ Narrative	Imaginary environment, characters or story which can stand as a metaphor for the real world.
Feedback	Response to the learner's actions or progress within the game.
Sensory stimuli	Engaging visual and sound effects.

Table 2: Bober's Game Features

Determine Goals

Goals in this educational mobile game application is to distinguish the difference between game and toy. Goals should be clear, meaningful and achievable but stretch the player's abilities. Players need a good strategy to achieve the goals. The process of achieving the goal which is bound by the rules makes the player motivated. According to Katie Salen and Eric Zimmerman (2004) there are six characteristics of game rules which are; 1) rules restrict player's action, 2) rules must be explicit, 3) rules are shared by all players, 4) rules are consistent and unchanged throughout the game, 5) rules bind all things in the game, and 5) rules can be repeated. Therefore, prior to the development process, the goals of the educational mobile game application should be determined.

Challenge

The second feature is challenge. Challenge is a test of the player's skill, set at a level to stretch their abilities. It can be anything needed to be faced by the players in order to achieve goals that are restricted by the rules of the game. Challenges are one of the issues faced by the players try in the game which is safe and non-threatening. It also should not be something too easy to overcome by players. The level of difficulty should be in line with the players' knowledge and skill throughout the game.

Feedback
Feedback is a response that is presented to the player as a result of player's action or progress within the game. Player should receive feedback on their progress towards achieving their goals. Providing immediate, relevant and clear feedback enable players to learn from their success and mistakes. Therefore, immediate and interactive feedback will be provided in educational digital game. Successful players will be given rewards and those who fail will receive penalty in the game.

Fantasy/ Narrative
Fantasy or narrative is an imaginary environment, character or story which can stand as a metaphor for the real world. This feature is essential but easily a misunderstood aspect of gaming. It involves generating story ideas of the game and game narrative structure. For this educational mobile game application, the player needs to follow the flow chart of the game. Each game has different goals, challenges, rules and game play. The player needs to determine the game narrative since the players are the hero of the game. The player will go to the next level after finishing the current level.

Sensory Stimuli
Sensory stimuli help to engage visual and sound effect. Sensory stimuli of the game are not only to make learning activity more fun and engaging, it is actually a much easier way for players to learn. Therefore, the educational mobile game application adopts several multimedia elements to activate player's stimuli.

ADDIE Instructional Design
For many years, researchers, educators, and instructional designers have used the ADDIE instructional design to produce effective educational programs. ADDIE is a systematic process that comprises five phases, which stands for Analysis, Design, Development, Implementation and Evaluation. This sequence does not impose a rigid, linear progression through each phase and every phase of ADDIE model is related to one another. Therefore, this study employs the ADDIE model as a framework for designing and developing an interactive mobile game application. The figure below illustrates the ADDIE instructional design process.

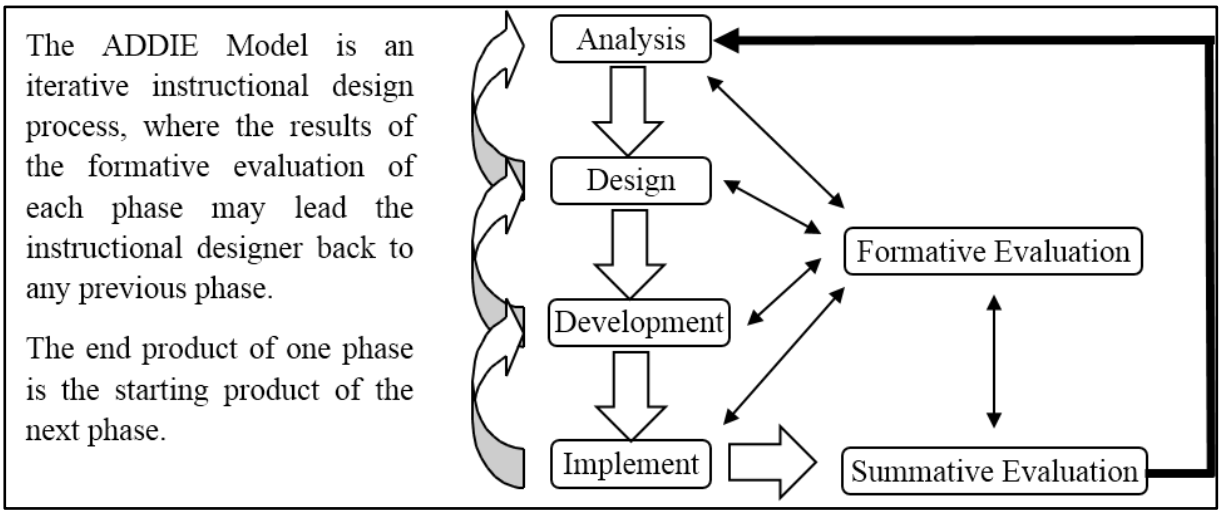

Figure 1: ADDIE Instructional Design Process

The Proposed Conceptual Framework

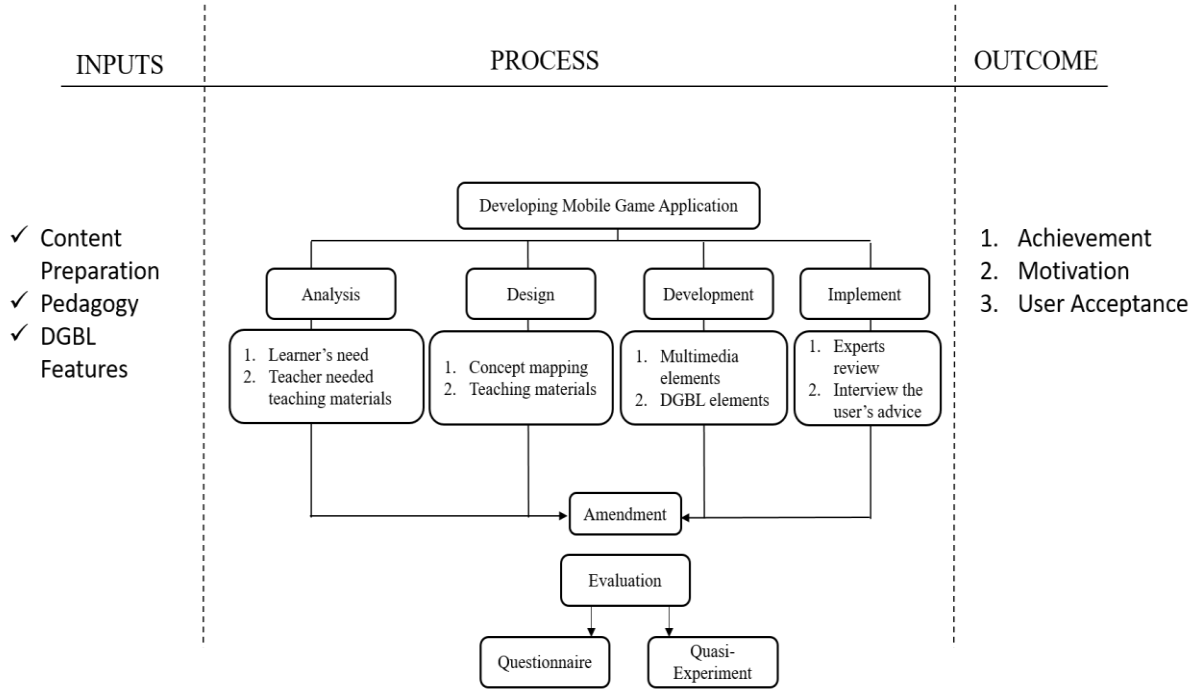

Figure 2: Proposed Conceptual Framework

Based on the ADDIE instructional approach, there are three parts in the proposed model. There are three input items in the model which are content preparation, pedagogy and DGBL characteristics. In this part, content preparation acts as a guidance and resource for Arabic students and teachers. The content should be clear and aligned with the learning objective and learning outcome. The content should also have the appropriate level of difficulties and must be parallel to students' level of proficiency, environment and culture. In the meantime, the pedagogical elements should include the learning objectives, learning outcome, instructional delivery, activities, and assessment.

The game must be aligned with the learning objectives which reflect the intended learning outcome. This is very important as the learning outcomes are benchmark that can determine the effectiveness of the teaching and learning process. Furthermore, the instructional delivery should be determined by teachers, hence, this proposed model tries to use digital game-based learning approach as instructional delivery. E-learning activities should be implemented by employing interactive multimedia elements such as drag and drop interactions or game mechanics. Digital games and simulations are some examples of the most effective e-learning activities. These activities give opportunities for students to gain experience in a supportive environment as every mistake could become a valuable learning opportunity. E-assessment is usually conducted at the end of an e-learning course. The e-assessment is incorporated to help the students gauge their own progress and identify areas for improvement. The last inputs are the DGBL features and characteristics which are derived from the literature. The researcher has chosen to adopt the DGBL characteristics discussed in Bober (2010) in the digital game. These characteristics are challenges, fantasy, feedback, goal and sensory stimuli.

In the process part, ADDIE instructional design contains an iterative model which consists of five stages which are analysis, design, development, implement and evaluation. During these

stages, a designer will make a formative evaluation and decide whether to make some amendments or go back to previous stages. The process starts with an analysis of the teachers' and learners' need to use the digital game-based learning approach. The teacher will then proceed with designing the learning objectives and outcomes and mapping the game by creating a flowchart and a storyboard. Subsequently, the teacher will decide the best instructional delivery and consider the pedagogy elements. The inputs from the design phase will serve as a guide for the development phase. This phase employs both multimedia elements and digital game-based learning elements. After the prototype is developed, the scholars and experts will validate the contents and the technical features of the game. Amendments and improvements will be made before the real user experiences the game. After some interventions, an evaluation will be conducted by employing quasi-experiments which will then be followed by questionnaires distribution for data collection.

Meanwhile, in regard to the outcomes, based on the model proposed, the evaluation was done through quasi-experiment and distributing questionnaire. Basically, most of the learning outcomes are focused on the result of gaming experiences. However, motivation and students' acceptance are also desired outcome in teaching and learning process. Hence, this model has three types of desired outcomes, which are achievement, motivation and perceived acceptance.

Conclusion

The digital mobile game is developed by following the five steps and stages of ADDIE model. This conceptual paper is dependent on the studies of the literature and educational game design model which consist of inputs, process and output. Moreover, this paper aims to provide a new model in designing and developing educational digital game in language learning. In order to achieve this aim, the researchers have integrated three main elements in developing digital game which are pedagogy, digital game-based learning and instructional design and technology. These three main elements are crucial to assist students to learn better and faster and help make teacher's time more effective. Implementing digital game-based learning promotes cooperative learning in a small group to achieve learning goal, motivate them to succeed and develop soft skill such as leadership, making strategies, creative and critical thinking. Therefore, in order to achieve all these benefits and advantages, the appropriate instructional design must be followed with the integration of pedagogical elements to sustain students' educational need. This conceptual paper proposes a conceptual framework to design a educational digital game for language learning. Since this framework is a universal framework, it is suggested for researchers to employ this conceptual framework in other educational courses such as science stream or art stream.

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