Available online at www.sciencedirect.com

ScienceDirect

Procedia - Social and Behavioral Sciences 00 (2012) 000–000

Procedia Social and Behavioral Sciences

www.elsevier.com/locate/procedia

6TH INTERNATIONAL CONFERENCE ON UNIVERSITY TEACHING AND LEARNING - InCULT 2012

EZ-Arabic for Children : A Virtual Learning Resource Tool for Malaysian Primary Schools

Muhammad Sabri Sahrir[a], Mohd Firdaus Yahaya, Mohd Shahrizal Nasir[*]

[a]*International Islamic University Malaysia, 53100 Kuala Lumpur, Malaysia.*
[b]*Universiti Sultan Zainal Abidin (UnisZA), 21300 Kuala Terengganu, Terengganu, Malaysia*
[b]*Universiti Sultan Zainal Abidin (UnisZA), 21300 Kuala Terengganu, Terengganu, Malaysia.*

Abstract

This innovation features a virtual Arabic learning tool prototype, which is specifically designed for learners at primary schools in Malaysia. The innovative process begun with the literature analysis of 3 theories based on the work of Nation (2003), Prensky (2001) and Mayer (2001). The design and development of this game-based learning prototype are modelled on the methods and approaches of design and development research (Richey & Klein, 2007) or formerly known as developmental research (Richey, Klein & Nelson, 2004). This method is also known as designed case (Reigeluth & Frick, 1999), design-based research (Reeves, 2006 & Herrington, et. al, 2007), formative research (Nieveen, 2007), and design research (Bannan-Ritland, 2003; Van der Akker, 2007). This prototype is designed and developed based on 'design principles' adapted from a study by Muhammad Sabri (2011), which was conducted on the design and development of an online Arabic vocabulary learning games prototype among pre-university learners in IIUM. This expanded Arabic virtual learning tool prototype enables teachers and students access to additional Arabic language learning aids, and complementing traditional learning methods. It facilitates Arabic learning enhancement through a compendium and variety of open-sources of learning tools such as the followings : a) E-book of Arabic text books, including extra reading story books, b) Educational Arabic games, c) Audio learning aids (MP 3) in Arabic, d) Visual learning aids (MP 4) in Arabic, e) Online dictionary and translator for Arabic, f) Online chat-box for virtual discussion and synchronous learning, g) Arabic keyboard for PC without stickers in Arabic letters, and h) Links of various websites for learning Arabic for children. The prototype provides a new learning experience for students who have been through a traditional Arabic teaching and learning methods, by immersing into the attractive, interesting and interactive virtual learning environment. The prototype is still in its pilot phase of design and development by analysing the feedbacks from teachers and pupils from several

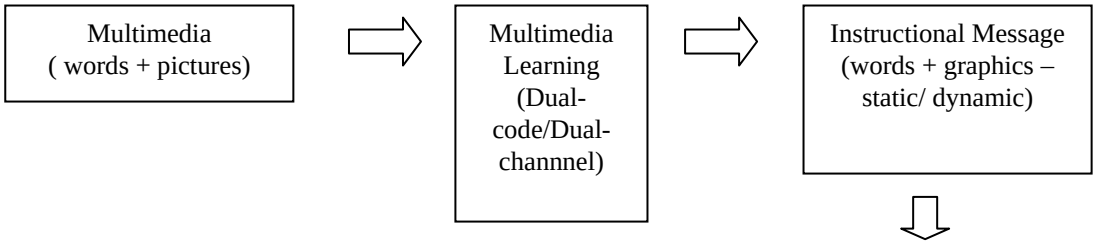
[*] Muhammad Sabri Sahrir. Tel.: +6-003-6196-5137-; fax: +6-003-6196-5049. *E-mail address*: muhdsabri@iium.edu.my

selected teachers in Malaysian primary schools. The prospect potential market and use of this product are wide, it includes: schools, universities and other learning institutions, special programmes, eg: J-Qaf, KAFA, states religious schools, etc. The URL for this prototype is http://ezarabic.net/v1/. This initial prototype won bronze medal award in 2012 International Islamic University Malaysia Research, Invention and Innovation Exhibition (IRIIE 2012) which was organised on 21-22 February 2012.

Keywords : *Design and development, e-learning games, virtual learning tools, design principles, instructional design model (ID).*

1. Introduction

Multimedia as defined by Mayer (2001) is the presentation of materials using both words (verbal) and pictures (pictorial). In integrating the element of multimedia in a learning process, the multimedia learning would simply means learning from words and pictures (Mayer, 2001). The full view of multimedia learning flow as discussed by Mayer (2001) is shown in the following Figure 1.0 :



Presentation Modes View	Definition	Example	Mayer's response
Delivery Media	Combination of 2 or more delivery devices	Computer + amplified speakers/ projector + lecturer's voice	Rejected because it emphasizes technology over learner.
Presentation Modes	Verbal and pictorial representations	On-screen text + animation/ printed text + illustration	Accepted because it focuses on learner's processing systems based on dual- channel assumptions from verbal and pictorial knowledge.
Sensory Modalities	Auditory and Visual Senses	Narration + animation/ lecture + slides	Accepted because it focuses on learner's processing systems based on dual- channel assumptions from auditory and visual images.

Figure 1.0 : Multimedia learning based on Mayer (2001)

The potential use of multimedia learning specifically in texts and images as mentioned previously by Mayer (2001) was expanded by other researchers by adding other characteristics such as sounds in facilitating and exploring language instructions (Bush, 2007), exploiting the mass delivery of World Wide Web (WWW) to enhance learning process and outcome (Joliffe, Ritter & Stevens, 2001), facilitating modified graphics for learning language vocabularies (Salsbury, 2006; Bush, 2007) implementing various

technology-enhanced syllabus in enhancing the effects on language learning such as electronic workbook, digitalized video, interactive listening comprehension quizzes, online reading materials and virtual community (Gill, 2006), and edutainment games that consist of many mediums such as sound, animation, video, text and images (Zarina & Hanafizan, 2005). Thus, the multimedia term and technology have many categories in addition to words and pictures, as it is increasing and expanding dramatically in second language learning in the United States over the past decade (Gill, 2006).

2. Multimedia Learning in Arabic Language

Ditters (2006) emphasized on the necessity of machinery technological production "Arabization" for language teaching and learning as it is currently dominated by the American-English language, be it for software or hardware. Mohd Feham (2006) claims that the Arabic language is following the trend in using instructional technology rather than founding and creating new invention and innovation. The use of instructional technology such as educational software and courseware are limited due to several reasons as studied by Zawawi (2008) in investigating the use of instructional teaching aids in Arabic language classrooms among selected Malaysian Secondary Religious School. His study found that the frequency of using computer-based and web-based instructional aids is of low frequency. The teachers preferred using traditional and non-computer instructional aids because of convenience which do not require additional efforts in preparing the teaching aids. Furthermore, the majority of Arabic language teachers are incompetent in using computer and courseware in teaching process due to poor computer literacy especially among the veteran generations, the difficulties in finding the Arabic courseware (Zawawi, 2008) and the incapability of handling a computer (Mohd Feham & Isarji, 2000). In addition, the nature of this language has contributed to the limitation of computer instructional aids due to its own writing system which differ from the Latin-based language. The integration of Arabic materials and contents into web-based environment should be handled carefully because the right-to-left writing system requires specially enabled Arabic software in stages of composing, editing, and implementing (Mohd Feham, 2006).

The attempt to apply new CALL technology in Arabic environment especially in Malaysia is still at the early stages and needs more cooperation between Arabic learning content experts and instructional designers to expedite and improve its development. The instructional research in this language is still very limited except for notable ones by Alosh (1995) and Mohd Feham (2006). The low frequency in using computer-based or web-based instructional aids in teaching and learning Arabic is found to be affected by reasons such as : (a) preference in using traditional and non-computer instructional aids among teachers, (b) poor computer literacy especially among the veteran educators, (Zawawi, 2008), (c) the incapability of handling a computer (Mohd Feham & Isarji, 2000) and (d) lacks of computer training (Ashinida, Afendi & Mohd Shabri, 2004).

The teaching and learning of Arabic language in Malaysia is still in needs for improvement compared to blooming existing and advanced technology in education in 21st century. The needs and gaps are obvious when when we look at dumping sotware and courseware developed for other subjects such as English, Science and Mathematics. Arabic learning is more to be more oriented textbooks and workbooks, included with additional exercises. By looking at the development of ICT in Malaysia, the rapidly through the emergence of a variety of computers and sophisticated gadgets such as laptops, notebooks, netbooks, e-book, podcasting, tablet PCs and smart phones', it is necessary teaching materials and enhanced the learning of Arabic to become more attractive in line with the development of the ICT era and not look backward to the back with permanent use of textbooks and the blackboard alone to adapt multi-skill learners in 21st century (Azman, 2012)

3. Employed Method of Design and Development Research (DDR) and Rapid Prototyping Model

The employment of design and development research (DDR) methodology as the selected approach is justified in this study by its pragmatism in testing the theory and validating the practicality. Besides, it is described as a way to establish new procedures, techniques and tools based on specific needs analysis (Richey & Klein, 2007). This methodology is also formerly known as developmental research (Richey, Klein & Nelson, 2004), designed case (Reigeluth & Frick, 1999), design-based research (Reeves, 2006 & Herrington, et. al, 2007), formative research (Nieveen, 2007), and design research (Bannan-Ritland, 2003; Van der Akker, 2007). Although many terms have been introduced to explain and describe this research method within its similarities and differences, it was first proposed by Brown and Collins in 1992 as an extension to other educational research methods (Wang & Hannafin, 2005) and to test theory and validate its practices (Richey & Klein, 2007). It is also employed to design and develop an intervention (such as programs, teaching-learning strategies and materials, products and systems) with the aim to solve a complex educational problem and to advance our knowledge on the characteristics of these interventions and the processes to design and develop them (Plomp, 2007, p.12). Wang and Hannafin (2005) define it "as a systematic but flexible methodology aimed to improve educational practices through iterative analysis, design, development, and implementation, based on collaboration among researchers and practitioners in real-world settings, and leading to contextually-sensitive design principles and theories" (p. 6). Table 1 illustrates the pragmatic elements of a design and development research that have been adapted in this study:

Table 1 : Elements of a design and development research

Goals	Dual goals – theory and practice
Theory development	Multidisciplinary and interdisciplinary
Method	Mixed modes
Process	Cyclical, iterative, teamwork
Resources	Extensive literature, collaboration, partnership, various research technologies
Outcomes	Improved theory, product, design principles

Adapted from Nor Aziah (2007)

This learning prototype is using the rapid prototyping model of instructional design model for the design and development process, as it is still at the early stage. The comments and suggestions prior to design and development are gathered from various users via open Facebook social networking website. Almost 13 pages of comments and suggestions were gathered in order to revise the design and development process of this prototype. The phases of design and development are shown in below Figure 2.0:

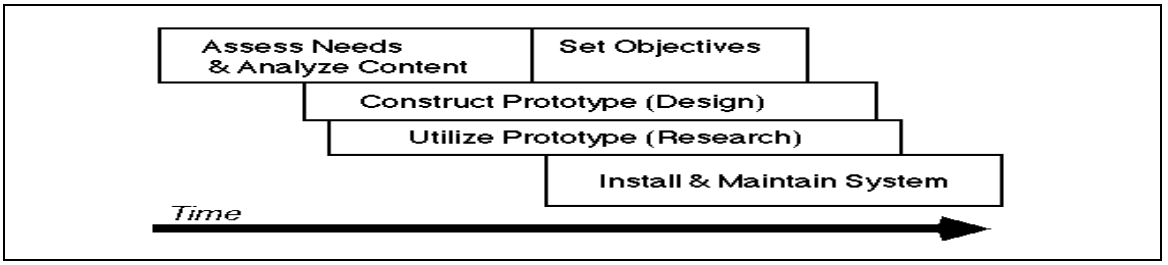


Figure 2.0 : Adapted Model of Rapid Prototyping (Tripp, S., & Bichelmeyer, B. (1990)

4. The Design and Development of EZ-Arabic for Children as Virtual Learning Platform

This EZ-Arabic is initially designed as virtual learning platform and tools for learning Arabic, especially for children learners at Malaysian primary schools from Standard 1 to Standard 6. It is proposed as altertanive supportive reference for traditional textbook as iniated by Ministry of Education Malaysia in the recent workshop of transforming the text textbook into digital versions (Azman, 2012).This virtual platform supports the learners via various multimedia support files such as pictures, sounds and videos in order to enhance learners' interest and motivation towards learning Arabic. This expanded Arabic virtual learning tool prototype enables teachers and students access to additional Arabic language learning aids, and complementing traditional learning methods. It facilitates Arabic learning enhancement through a compendium and variety of open-sources of learning tools such as the followings : a) E-book of Arabic text books, including extra reading story books, b) Educational Arabic games, c) Audio learning aids (MP 3) in Arabic, d) Visual learning aids (MP 4) in Arabic, e) Online dictionary and translator for Arabic, f) Online chat-box for virtual discussion and synchronous learning, g) Arabic keyboard for PC without stickers in Arabic letters, and h) Links of various websites for learning Arabic for children.

The details of the design and development process and phases of EZ-Arabic are as shown in below Table 1.0. :

Table 1.0 : Design and Development Process and Phases of EZ-Arabic

Phase(s)	Process(es)
Assess needs and analyse contents	• Analyse needs of learners • Analyse needs of institutions • Analyse learning contents • Analyse existing or other online courseware
Set objectives	• Set objectives of language learning • Set objectives of language skills • Design principles
Construct Prototype	• Collaborative works and partnership • Iterative, cyclic and teamwork • Using various research technologies
Utilize Prototype	• Conduct Small User Testing Sessions • Conduct Online User Testing Sessions via Facebook ® • Gather Comments and Feedbacks
Install and Maintain System	• Review process of design and development • Continuous improvement of prototype

5. Conducting Online User Testing Sessions and Gathering Feedbacks/Comments

The process of conducting online user testing sessions was done via online social working network of Facebook ®. The selection of Facebook is due to the fact that it is a famous and wide-spread use of social working network all over the world and to gather faster comment and feedbacks from online users. Furthermore, other users can read previous comments and feedbacks before proceed with their own point of views. The online survey was posted from February 15, 2012 until the last comment which received on March 1, 2012 (2 weeks). The total of comments was 55 qualitative responses with 48 select LIKE

buttons. The comments are to be analysed into main thematic and sub-thematic comments. The screenshot of posted online survey via Facebook ® is as shown in below Figure 3.0:

Figure 3.0: Online survey via Facebook ® social network website

The survey was posted in Malay in order to gather as much as comments and feedbacks from various users from all background of respondents. The quotation of posted question was as the following:

"Assalamualaikum. Mohon para pakar, penyelidik, pendidik dan pelajar bahasa Arab atau sesiapa sahaja yang meminati pengajaran dan pembelajaran bahasa Arab untuk memberi komentar dan cadangan tentang laman belajar bahasa Arab ini. Ia merupakan hasil inovasi kumpulan penyelidik yang diketuai Dr. Muhammad Sabri Sahrir, Mohd Firdaus Yahaya dan Mohd Shahrizal Nasir. Semua cadangan ke arah penambahbaikan laman belajar ini amat dialu-alukan. JazakumuLlah Khayr al-Jazak. LINK : http://ezarabic.net/v1/ ".

Translation in English:" Assalamualaikum. We are seeking for comments and suggestions to improve this educational Arabic language learning website from experts, researchers, educators and anybody who are interested in teaching and learning Arabic. This product is an innovation of a research team lead by Dr. Muhammad Sabri Sahrir, Mohd Firdaus Yahaya dan Mohd Shahrizal Nasir. All suggestions for further improvement are fully welcomed. JazakumuLlah Khayr al-Jazak. LINK : http://ezarabic.net/v1/ ".

6. Samples of screenshots from EZ-Arabic

Below are some of the main screenshots from EZ-Arabic as a virtual learning platform with justification of features and functions, such as shown in below Figure 4.0 and Figure 5.0:

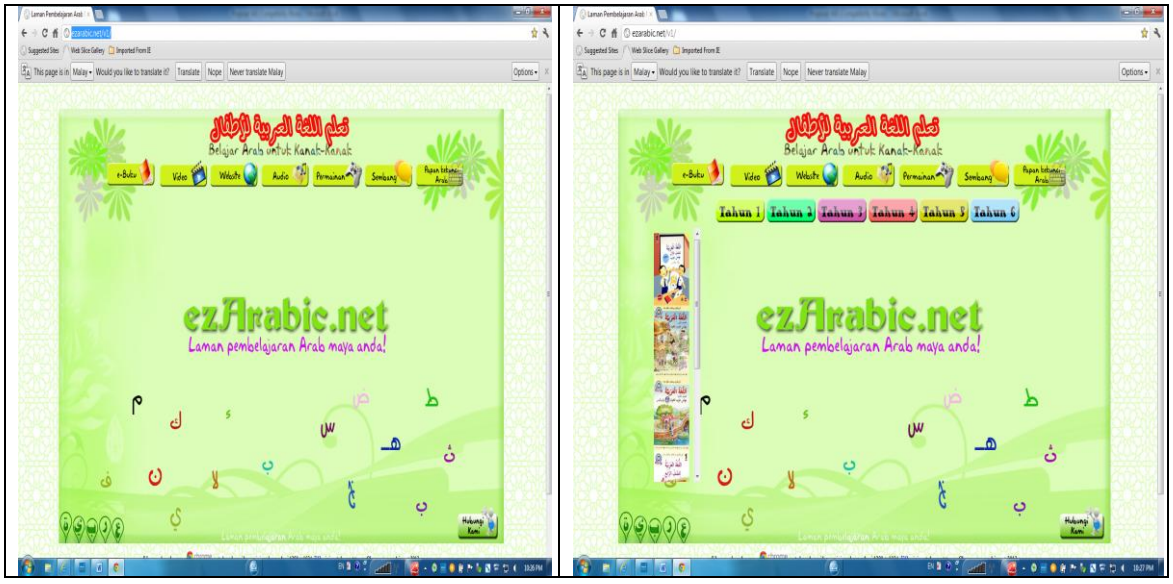


Figure 4.0 : Screenshots of Online Arabic Vocabulary Learning Website

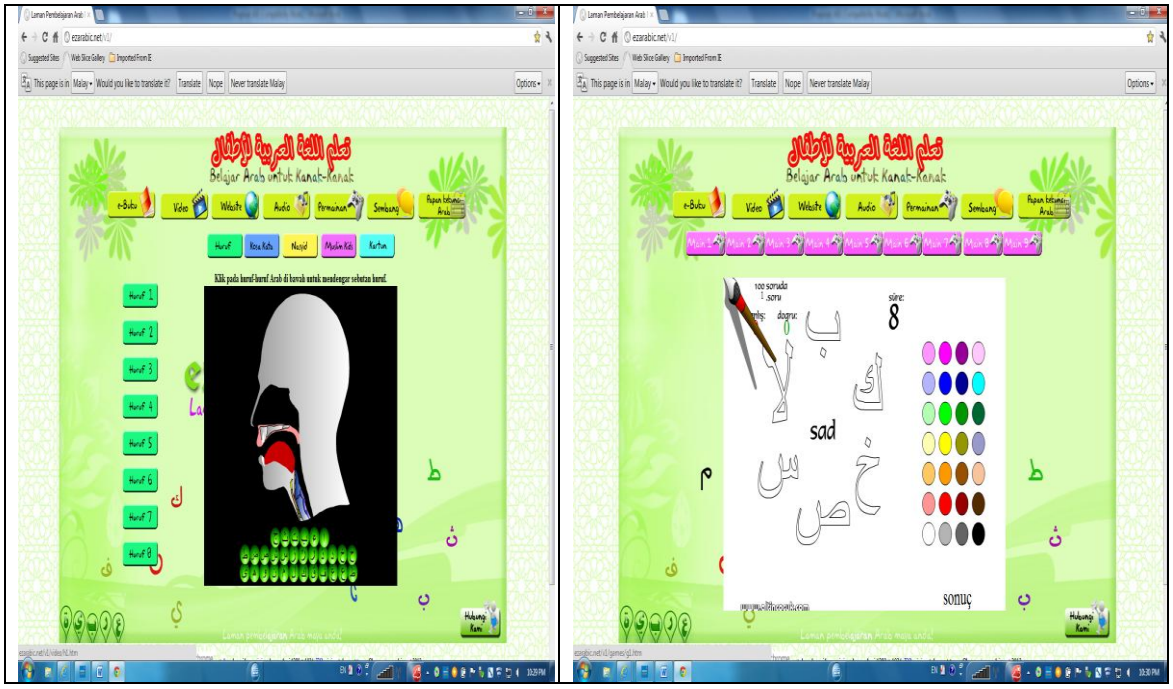


Figure 5.0 : Learning Arabic via Videos and Games in EZ-Arabic

6. Discussions of Results and Findings

Below are among the comments and suggestions among users for EZ Arabic as gathered from Facebook. The main themes are shown below after the transcripts of user's feedbacks, which will be used for further improvement of design and development for this virtual learning prototype. The comments and suggestions by users towards the production of an interesting learning virtual prototype for learning Arabic vocabulary were analysed and grouped accordingly as shown in Table 2.0 below :

Table 2.0 : Main Themes from comments and suggestions

No	Comments and feedbacks
1	**INTERFACE**
	Improve user-friendly and interface.
	Make e-book bigger
	Language instructions need to be in bilingual
	Some buttons such as 'contact us' is suggested to be placed on the top of website
	It seems beautiful and cute, but with a little bit of 'klise' in the design
	Make the interface not so formal but interesting
	Make it more colourful for children
2	**SUPPORT**
	Some audios and videos need to be improved
	Need for sounds for Nasyid section
	Need to add instructions on how to install Arabic in Windows ®
	Need to add E-Jawi
	Include more Arabic videos and audios
	Suggestions of various additional links of e-qamus, videos and audios
3	**CHALLENGE**
	The use of videos from Youtube ® may be distracted by advertisements
	Design own videos and upload them into Youtube ®
	Some broken links and sounds
4	**SUITABILITY**
	Easy access and suitable for children
	The video should be using standard Arabic, not colloquial one
	Some illustrations of Arabic words need to be corrected and improved
	The language instructions in buttons should be in bilingual
5	**EASE OF USE**
	Can be used in learning at home
	Various resources of learning tools
	Suitable for children
6	**VALUE-ADD AND VARIETY**
	Should further design for I-Pad in mobile learning
	Can be further designed for adults as well
	Need to add pictured dictionary
	The videos need for subtitles.
	Need to add references of various syllabus
	Change from PDF files to GIF for e-book for faster loading
	Technical suggestions for improving quality of videos

Table 2.0 : Continued

7	**LEARNING CONTENT**
	Need to be aligned with standard syllabus of Arabic in Ministry of education
	Suitable for children and can be extended for adults
	Suggestion for designing the same prototype for secondary schools
	The level of contents should be suitable for level of children
	Can be extended by collaborative research with Division of Curriculum Development in Ministry of Education

The finding showed that the participants have positive responses towards the potential of EZ-Arabic in enhancing the learning Arabic language among learners in Malaysian primary schools. In addition, to their enthusiasm, the respondents put forward several suggestions for further improvement of this virtual prototype in the future.

7. Conclusion

This paper discussed and presented the attempts and efforts to produce an interactive Arabic learning programme by integrating learning contents in several traditional contemporary text books with several open source web-based applications as a sample of proposed design framework theoretically and practically. This design framework may be useful for designing interactive Arabic a-learning tools in other educational settings and environment. As it is contributing towards increasing the motivation and positive perception among non-native speakers in learning Arabic that is not their mother tongue and primary language of daily communication.

Award Received

This e-learning games prototype have won a bronze medal in *IIUM Research, Invention and Innovation Exhibition (IRIIE) 2012*, International Islamic University Malaysia (IIUM).

Notes on Contributors

Muhammad Sabri Sahrir (Ph.D) is currently an academic staff at Department of Arabic Language and Literature, KIRKHS, International Islamic University Malaysia (IIUM). His research interests are curriculum development and evaluation, educational technology, and teaching Arabic as a foreign language.

Mohd Firdaus Yahaya (MA) is currently an academic staff at Faculty of Languages and Communication, Universiti Sultan Zainal Abidin (UnisZa), Kuala Terengganu, Terengganu. His research interests are curriculum development and evaluation, educational technology, teaching Arabic as a foreign language and e-portfolio in education.

Mohd Shahrizal Nasir (MA) is currently an academic staff at Faculty of Languages and Communication, Universiti Sultan Zainal Abidin (UnisZa), Kuala Terengganu, Terengganu. His research interests are curriculum development and evaluation, educational technology, teaching Arabic as a foreign language and Islamic education.

References

Alosh, M.M. (1995). Computer-assisted language learning for Arabic : Rationale and potential research. In M. Al-Battal (Ed.). *The teaching of Arabic as a foreign language* (pp. 257-290) Al-'Arabiyya Monograph Series, Number 2. Printed in USA : American Association of Teachers of Arabic.

Ashinida Aladdin, Afendi Hamat & Mohd. Shabri Yusof (2004). *Penggunaan PBBK(Pembelajaran Bahasa Berbantukan Komputer) dalam pengajaran dan pembelajaran Bahasa Arab sebagai bahasa asing: Satu tinjauan awal*. GEMA Online Journal of Language Studies, Vol.*4*(1) 2004 ISSN1675-8021

Azman, Abdul Ghani (2012). *Transformation of Curriculums Towards Textbooks in Secondary Schools.* Workshop in a National Transformation of Textbook, Ministry of Education, Malaysia. Crystal Crown Hotel, Petaling Jaya, Selangor from 24-27 June.

Bannan-Ritland, B. (2003). *The role of design in research: The integrative learning design framework*. Educational Researcher, Vol. 32, No. 1, January/February, 2003, pp. 21-24.

Bush, M.D. (2007). Facilitating the integration of culture and vocabulary learning: the categorization and use of pictures in the classroom. *Foreign Language Annals*, Winter 2007; 40, 4; ProQuest Education Journals, pp. 727-745.

Ditter, E. (2006). Technologies for Arabic language teaching and learning. In K.M. Wahba, Z.A. Taha, & L. England (Ed.). *Handbook for Arabic language teaching professionals in the 21st century* (pp. 239-252). New Jersey, USA : Lawrence Erlbaum Associates, Inc.

Gill, D. (2006). Effects of technology on second language learning. *Journal of College Teaching & Learning*, 3(2), Feb 2006, 19-28. Retrieved from http://www.cluteinstitute-onlinejournals.com/PDFs/200651.pdf on November 20, 2008

Herrington, J., McKenney, S., Reeves, T., & Oliver, R. (2007). Design-based research and doctoral students: Guidelines for preparing a dissertation proposal. In C. Montgomerie & J. Seale (Eds.), *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2007* (4089-4097). Chesapeake, VA: AACE.

Joliffe, A., Ritter, J., & Stevens, D. (2001). *The Online Learning Handbook, Developing And Using Web-Based Learning*. (1st ed.), London, UK : Kogan Page Limited.

Mayer, R.E. (2001). Multimedia learning. *9th edition, 2007. New York, USA:Cambridge University Press.*
Mohd Feham, Md. Ghalib & Isarji, Sarudin (2000). *On-line Arabic: Challenges, limitations and recommendations.* In proceedings of National Conference on Teaching and Learning in Higher Education, Universiti Utara Malaysia, Kedah, pp. 231-239.

Mohd Feham, Md. Ghalib (2006). *The design, development and testing on the efficacy of a pedagogical agent on the performance and program rating scores among students learning Arabic.* Unpublished doctoral dissertation, Universiti Sains Malaysia (USM).

Muhammad Sabri, Sahrir (2011). *Analysis, design and development of an online vocabulary game for Arabic elementary learners*. Unpublished doctoral dissertation, Universiti Teknologi MARA (UiTM).

Nation I.S.P. (2001). *Learning vocabulary in another language.* 4th edition, 2003. United Kingdom : University Press, Cambridge.

Nor Aziah Alias (2007). Spurring innovation through developmental research in education. *Educational Awakening : Journal of The Educational Sciences, 4(1), 2007, pp. 45 – 60,* published by Institute of Education, International Islamic University Malaysia.

Nieveen, N. (2007). Formative evaluation in educational design research. – An introduction to educational design research**.** *In the proceedings of the seminar conducted at the East China Normal University, Shanghai (PR China), November 23-26, 2007, pp. 89-102.*

Plomp, Tjeerd (2007). *Educational design research : An introduction.* In the proceedings of the seminar conducted at the East China Normal University, Shanghai (PR China), November 23-26, 2007, pp. 9-36.

Prensky, M. (2001). *Digital game-based learning. Edition 2007,* USA: Paragon House.

Reeves, T. (2006). Design-based research for advancing educational technology. Retrieved on 9th January, 2009 from http://www.it.coe.uga.edu/~treeves/EDIT9990/EDIT99909Jan06.ppt

Reigeluth, C. M. & Frick T.W., (1999). *Formative research: A methodology for creating and improving design theories.* In Regeluth, C. M. (Ed.) Instructional Design Theories and Models Vol. II., pp. 633-651.Mahwah NJ: Lawrence Erlbaum Associates.

Richey, R.C., Klein, J.D. & Nelson, W. A. (2004). *Developmental research: Studies of instructional design and development.* Retrieved on 31st March, 2009 from http://www.aect.org/edtech/41.pdf

Richey, R.C. & Klein, J.D. (2007). *Design and development research*. New Jersey, USA : Lawrence Erlbaum Associates, Inc.

Salsbury, D.E. (2006). Comparing teacher-directed and computer-assisted instruction of elementary geographic place vocabulary. *The Journal of Geography, 105*(4), Jul/Aug 2006, ProQuest Education Journals,147-154.

Tripp, S., & Bichelmeyer, B. (1990). Rapid prototyping: An alternative instructional design strategy. Educational Technology Research & Development, 38(1), 31-44.

Van der Akker, J. (2007). *Curriculum design research. - An introduction to educational design research.* In the proceedings of the seminar conducted at the East China Normal University, Shanghai (PR China), November 23-26, 2007, pp. 37-52.

Wang, F. & Hannafin, M.J. (2005). *Design-based research and technology-enhanced learning environments*. ETR&D, Vol. 53, No. 4, 2005, pp. 5–23, ISSN 1042–1629.

Zarina Che Embi, & Hanafizan Hussain (2005). Analysis of local and foreign edutainment products – An effort to implement the design framework for an edutainment environment in Malaysia. Multimedia University, Malaysia. *The Journal of Computers in Mathematics and Science Teaching, 24(1), 2005, ProQuest Education Journals, pp. 27-42.*

Zawawi, Ismail. (2008). Penilaian pelaksanaan kurikulum kemahiran bertutur bahasa Arab Komunikasi Di Sekolah Menengah Kebangsaan Agama. – *An evaluation of implemented curriculum of speaking skill in Arabic Communicative subjects in Religious Secondary Schools*. Unpublished PhD Dissertation, Universiti Kebangsaan Malaysia, Bangi.