Available online at www.sciencedirect.com

ScienceDirect

Procedia - Social and Behavioral Sciences 176 (2015) 1020 – 1027

Procedia
Social and Behavioral Sciences

IETC 2014

The potential of video game in Malay language learning for foreign students in a public higher education institution

Norlidah Alias, Fuziah Rosman, Mohd.Nazri Abd. Rahman, Dorothy Dewitt

Department of Curriculum and Instructional Techmology,
Faculty of Education, University of Malaya,
50603 Kuala Lumpur. Malaysia

Abstract

The current study is aimed at investigating the potential of video game in teaching Malay language for foreign students in a Public Higher Education Institution (PHEI).The main objective is to consolidate the opinions of experts on types of video games, predicted year of appearance, and suitability of types of video games. Fuzzy delphi (FDM) is mainly used to consolidate a consensus of selected 30 experts from various disciplines and backgrounds. The administered instrument consists of 35 sub items across three themes.The findings show that the experts have reached consensus on items 1.1 to 3.5, with *defuzzification* value of 0.640 to 0.727. It is found that narrative genre, and platformer games are suitable for foreign learners to learn Malay language. The results also suggest that computer-based video games will not be the trend in Malay language learning from 2024 to 2028 (*defuzzification* value of 0.727). Instead, *augmented reality games* and *Mobile learning* will be dominant trends in future. The findings also show that expert consensus was reached on the effectiveness of video games in developing vocabulary of Malay language (*defuzzification value of* 0.693). In short, the experts "strongly agreed" that video game is potentially effective in teaching Malay language for foreign learners in the selected PHEI.

Peer-review under responsibility of the Sakarya University.

Keywords:Video games, Malay Language learning, Fuzzy Delphi

Corresponding author: drnorlidah@um.edu.

Peer-review under responsibility of the Sakarya University.
doi:10.1016/j.sbspro.2015.01.573

1. Introduction

In this 21st century the role of Malay language has changed its context from an official language, national language and language of knowledge to a language learned as a foreign language. The Malay language is used in all Malaysian Public Higher Education Institutions (PHEI), Private Higher Education Institutions (PrHEI) and in institutions overseas in China, Russia, the United Kingdom, Uzbekistan, among others. Awang Sariyan (2006) also stated that bahasa Melayu, while not as widely needed as the English language. Its has own place among major languages of the world especially among foreign language learners. This is because teaching and learning of bahasa Melayu (BM) in PHEI has been introduced to foreign and international students as a compulsory subject (Fai'zah Abd. Manan, Mohamad Amin Embi, & Zamri Mahamod, 2010).

Based on the experience of the International Islamic University Malaysia (IIUM), the BM course was made compulsory to foreign students at IIUM. According to Siti Baidura Kasiran and Nurul Jamilah Rosly (2011) most foreign students taking basic degree courses at the university learn BM as a third language. Students not only have to learn BM, they must pass the subject as acondition for graduation. The BM for Foreign Students course was made compulsory for all foreign students at IIUM by a Senate decision in April 1991.

The course offered is split into two parts, namely *Kursus Bahasa Melayu I untuk Pelajar Asing* (Malay Language Course I for Foreign Students) (LM 1010) and *Kursus Bahasa Melayu II untuk Pelajar Asing* (Malay Language Course II for Foreign Students) (LM 1011). The contact hours for this course are 50 minutes per session and classes are held twice a week (Siti Baidura Kasiran & Nurul Jamilah Rosly, 2011).However, in 2011 the BM course for foreign students was reviewed based on the decision by the senate 373rd meeting on 30th September 2011.

Video games has been used for the learning process and is referred to as *game-based learning* (Squire, 2003) or *digital game-based learning* (Prensky, 2001). This is supported by Tang et al.(2009) who also stated that the term used is computer game in education and it is also referred to as '*digital game-based learning*' (Prensky, 2001) and another term used is'*games-based eLearning*' by Connolly dan Stansfield (2007) in Tang et al. (2009). In fact, video game can be regarded as a teaching aid with potential for application in various disciplines in education (Moreno, 2008; Squire, 2003; Prensky, 2001).

2. Literature review

Studies on use of video games in language learning outside Malaysia mostly focused on effectiveness of computer games, digital games and video games by researchers (Muhammet Demirbilek, Ebru Yilmaz, & Suzan Tamer, 2010; Shelton & Scoresby, 2011; Ricardo Rosas et al., 2003; Ranalli, 2008; Walsh, 2010; Yildiz Turgut & Pelin Irgin, 2009). Other studies have focused on development and design of video games and application of existing video games for language learning, example *The Sims* (Ranalli, 2008), SHAIEx, a digital game byAdaptive Hypermedia system (Laleh Aghlara & Nasrin Hadidi Tamjid, 2011) as well as application of virtual 3D in language learning (Berns, Pardo, & Camacho, 2013; Ibanez et al., 2011; Piirainen & Tainio, 2009).

In Malaysia, research on video games in language learning had been conducted for Arabic language by Muhammad Sabri Sahrirdan Nor Aziah Alias (2011). Muhammad Sabri Sahrir, Nor Aziah Alias, Zawawi Ismail and Nurul Huda Osman (2012) used a design and developmental research (DDR) approach to develop a prototype for online vocabulary games in learning Arabic. A case study for transfer of vocabulary through computer games was carried out by Nadzrah Abu Bakar and Elaheh Nosratirad (2013) in English as a Scond language (ESL) subject using the existing video game SIM 3 as the platform for vocabulary learning. In addition, Fuziah Rosman et al. (2013) has done a meta analysis on the potential of video game in BM vocabulary learning for international students in Malaysia.

3. Statement of the problem

Studies on learning of BM as a foreign language mostly cover language learning strategies (Fa'izah Abd. Manan, Zamri Mahamod & Mohamed Amin Embi, 2009; Fai'zah Abd. Manan, Mohamad Amin Embi, &Zamri Mahamod, 2010; Yong, Siti Saniah Abu Bakar, Chan, & Vijayaletchumi, 2010; Siti Saniah Abu Bakar & Sharala Subramaniam, 2012) whereas analysis of student errors was done by Siti Baidura Kasiran dan Nurul Jamilah Rosly (2011) as well as Yong danVijayaletchumi (2012). Study on video game in the context of language learning was done by Walsh (2010); Yildiz Turgut and Pelin Irgin (2009); Muhammet Demirbilek, Ebru Yilmaz and Suzan Tamer (2010); Ranalli (2008); Piirainen and Tainio (2009); as well as Laleh Aghlara and Nasrin Hadidi Tamjid (2011). These studies mainly touched on two main topics: the type of video and the effectiveness of video game in language learning. Among the types of video games discussed are Massively Multiplayer Online Role Playing Games (MMORPGs), online video game, 3D Multi-User Virtual World, and SHAIEX (*Adaptive Hypermedia*

System). However, the effectiveness of video game in language learning is mostly seen in studies on learning of English as a Second Language (ESL) or English as a Foreign Language (EFL).

Further, studies were done on approaches to BM learning for foreign students such as the study by Siti Radziah Azit (2005) regarding implementation of multimedia in BM language learning and the study by Anuradha (2008) on designing a BM language learning portal for foreign students at University of Malaya. However, there does not seem to be any studies on the use of video game for learning BM for foreign students in PHEI as areare research reports on foreign students in PHEIs.The study by Fuziah Rosman, Norlidah Alias, Saedah Siraj, Husaina Banu Kenayathullah, Abd Razak Zakaria, and Ghazali Darusalam (2013) only used a meta analysis approach on the potential of video game in BM vocabulary learning by international students in Malaysia.

4. Objectives

In general, this study is aimed at investigating the potential of video game in implementing learning of BM as a foreign language in a Public Higher Education Institute (PHEI). The research objectives are given in the following:

4.1 To obtain expert consensus on the predictions of the type/genre of video game in implementing learning of BM by foreign students in a PHEI.

4.2 To obtain expert consensus on prediction of emergence of video game based on technology used in implementing teaching and learning of Bahasa Melayu among foreign students at a PHEI.

4.3 To obtain opinion of experts regarding the suitability of each type of video game for the aspect of basic skills in Bahasa Melayu in implementing learning of bahasa Melayu by foreign students in a PHEI.

5 Theoretical framework

In this study, the theoretical framework used is the model of curriculum by Hunkins and the social constructivist theory. Discussion will begin with the Hunkins curriculum model followed by social constructivist theory. Hunkins (1980) in Ornstein and Hunkins (2004)outlined seven phases in decision making on curriculum namely: a) conceptualizing the curriculum and verifying it; b) diagnosis; c) selecing content; d) selecting experiences; e) implementation; f) evaluation, and g)sustainment. The Hunkins curriculum model is used to design the futuristic curriculum in determining the suitability of selecting video game elements and implementation of curriculum in BM language learning for foreign students in PHEI.

Social constructivism is a theory derived from Piaget's cognitive development theory and the *Zone of Proximal Development*, ZPD introduced by Vygotsky (Mok, 2013). ZPD is the performance and ability of students to solve problems exceeding their capability as well as achieving development at a higher potential. In the context of this study, social constructivism theory is used in the aspect of video game as the medium of instruction or *scaffolding* in implementing learning of Malay language among foreign students in PHEI. This theory shows that the process of learning Malay language through video games can enhance the performance of a student whether aided by a teacher or more proficient peer to succeed and be motivated according to capability level.

6. Methodology

This study uses the *Fuzzy Delphi* technique introduced by Murray, Pipino, and Gigch (1985) and revised by Kaufman and Gupta (1988). FDM is a combination of *fuzzy set numbering* or *fuzzy set theory* applied in thetraditional Delphi technique. This technique is not new in future studies and a fast and effective technique for obtaining consensus from experts without too many iterations or cycles (Norlidah Alias, Mohd Nazri Abdul Rahman,& Saedah Siraj, 2013).

Two main considerations are found in FDM, namely the*Triangular Fuzzy Number and Defuzzification Process*. Triangular Fuzzy Number has three values (m_1, m_2, m_3) namely the minimum value, most reasonable value and the maximum value. Defuzzication is used to determine the ranking for each variable or item or each subvariable or sub item. Three equations can be applied to determine the ranking:

6.1 $A_{max} = 1/3 * (a_1 + a_m + a_2)$

6.2 $A_{max} = 1/4 * (a_1 + 2a_m + a_2)$

6.3 $A_{max} = 1/6 * (a_1 + 4a_m + a_2)$

Next, a list of 30 experts was selected as the expert panel in this study. The data collection is implemented through the Fuzzy Delphi approach. Firstly, interviews were carried out, and the Delphi technique was used to develop a questionaire. Next, the questionnaire responses were analyzed using *fuzzy number* technique. A 5-point scale was used (Norlidah Alias, Mohd Nazri Abdul Rahman & Saedah Siraj, 2013). The purpose was to obtain consensus

among the experts to predict the type of video game required for instruction in the basic skills for BM for foreign students. The answers from the experts is placed on a scale from 1 to 5 with the fuzzy value (Table 1).

Table 1: Five point scale

Scale (Linguistic variable)	
Highly Disagree	(0.00, 0.10, 0.20)
Disagree	(0.10, 0.20, 0.40)
Moderately Agree	(0.20, 0.40, 0.60)
Agree	(0.40, 0.60, 0.80)
Highly Agree	(0.60, 0.80, 1.00)

7. Results

Data analysis was carried out using the *Fuzzy Delphi* technique to ascertain the level of consensus between experts. The findings for all items have been analysed by determining the distance between 2 *Fuzzy numbers* for calculating the threshold value, **d** (Chu & Hwang, 2008) as follows:

$$d(\bar{m},\bar{n}) = \sqrt{\frac{1}{3}\left[(m_1 - n_1)^2 + (m_2 - n_2)^2 + (m_3 - n_3)^2\right]}.$$

In this study, the prerequisite (1) was fulfilled because the *threshold* value for most sub items is ≤ 0.2, but for part of the sub items only. Nevertheless, the second condition (2) also was fulfilled because the expert consensus had exceeded 75%. The result of summing up the *threshold* values ≤ 0.2, showing that this study found a *threshold* value exceeding 75% and recording 77.8% for all items encompassing 41 sub items.

Subsequently, analysis shows the prediction of the types of video games in implementing learning of BM for foreign students in PHEI. In item 1, there were five sub itemsas explained in Table 2.

Table 2: The ranking for different genres of video games used in implementing BM learning among foreign students

Item	Predicted type / genre of video game	*Fuzzy evaluation*	*Defuzzification*	Ranking
1.1	Video games of all types/genres need to be applied in learning of BM among foreign students.	(13.2, 19.2, 25.2)	0.640	4
1.2	Video games on racing are very suitable for learning activities in BM learning among foreign students.	(11, 17, 23)	0.567	5
1.3	Online video games must be used in learning BM among foreign students whether in class or outside class.	(14.2, 20.2, 26.2)	0.673	3
1.4	Video games of the narrative genre are suitable for learning of BM by foreign students.	(14.9, 20.8, 26.8)	0.694	1
1.5	The learning situation for BM learning among foreign students will be more interactive by implementing *video simulation games*.	(14.8, 20.8, 26.8)	0.693	2

Based on Table 2, the majority of experts agreed with item 1.4 with a *defuzzification* value of 0.694 in the first

rank. This shows that video games in the narrative genre are very suitable for learning BM as a foreign language.

The following analysis shows that the predicted time of emergence of video game based on technology used in implementing BM learning among foreign students in PHEI. For item 2, there are five sub items and five phases in question, namely from 2014 - 2018, 2019 - 2023, 2024 - 2028, 2029 - 2033 and 2034 – 2038, as given in Table 3.

Table 3: Predicted emergence of technology-based video game in learning of BM among foreign students.

Item	Prediction	subitem	Predicted time frame	Fuzzy evaluation	*Defuzzi-fication*	Ranking
2.1	Bahasa Melayu video game for foreign students will be available on any gadget and public interactive board.	2.1.1	2014 – 2018	(10.8,16.8,22.8)	(0.560)	2
		2.1.2	2019 – 2023	(13.2,19.2,25.2)	(0.640)	1
		2.1.3	2024 – 2028	(9.4,15.4,21.4)	(0.513)	3
		2.1.4	2029- 2033	(6.5,10.4,16.4)	(0.370)	4
		2.1.5	2034-2038	(5.2, 9.8, 14.6)	(0.329)	5
2.2	Potential of *Mobile learning* with the capability of video game technology using touch screen through smart phone or tablet in implementing learning of BM by foreign students.	2.2.1	2014 – 2018	(13.8,19.6,25.8)	(0.658)	1
		2.2.2	2019 – 2023	(13.2,19.2,25.2)	(0.640)	2
		2.2.3	2024 – 2028	(9.1,15,21.2)	(0.503)	4
		2.2.4	2029- 2033	(9.8,15.4,21.4)	(0.518)	3
		2.2.5	2034-2038	(5.6,10,14.4)	(0.333)	5
2.3	Augmented Reality Gameswill feature virtual technology *Depth-Sensing Cameras* in smartphones and tablet more effective for learning of bahasaMelayu.	2.3.1	2014 – 2018	(7.9,12.8, 18)	0.430	5
		2.3.2	2019 – 2023	(13.4,19.4,25.4)	0.647	2
		2.3.3	2024 – 2028	(13.8,19.8,25.8)	0.660	1
		2.3.4	2029 - 2033	(8.5,13.4,19.4)	0.459	4
		2.3.5	2034 - 2038	(9.2,14.3,19.6)	0.479	3
2.4	Computer based video game will not become the trend in Bahasa melayu learning among foreign students.	2.4.1	2014 – 2018	(7.7,12.6,17.8)	0.423	5
		2.4.2	2019 – 2023	(9.8,14.8,20.6)	0.502	4
		2.4.3	2024 – 2028	(15.8,21.8,27.8)	0.727	1
		2.4.4	2029 - 2033	(11.5,17.4,23.4)	0.581	2
		2.4.5	2034 - 2038	(10.4,16.1,21.8)	0.537	3
2.5	Transfer of nano technology knowledge can be the trend in shaping the use of video game in learning BM among foreign students.	2.5.1	2014 – 2018	(9.5,15.2,21)	0.508	2
		2.5.2	2019 – 2023	(13.2,15.2,25.2)	0.640	1
		2.5.3	2024 – 2028	(8.4,14.4,20.4)	0.480	3
		2.5.4	2029 - 2033	(8.1,13.2,19.2)	0.450	5
		2.5.5	2034 - 2038	(9,1.13.9,18.8)	0.463	4

The ranking according to expert consensus for all sub items is given from 2.1.1 until 2.5.5 is shown in Table 3.Based on Table 3, the majority of experts agree withsubitem 2.1.2 and its *defuzzification* value of 0.640 in the first rank. This shows that video game in BM for foreign students can be found in any gadjet and public interactive board predicted from 2019 - 2023.

The majority of experts also agreed with subitem 2.2.1 with a *defuzzification* value of 0.658. This shows that the potential of *Mobile learning* will see the capability of video game technology on touch screen of smartphone or tablet in implementing the learning of BM among foreign studentsis expected from 2014 - 2018.

Meanwhile, for item 2.3, The majority of experts also agreed with subitem 2.3.3 with a *defuzzification* value of 0.660 in the first rank.This shows that Augmented Reality Games*featuring* virtual technology such as Depth-Sensing Camerasin smartphones and tablets will be more effective in BM learning predicted from 2024 - 2028.

Similarly with item 2.4, the majority of experts agreed withsubitem 2.4.3 with a *defuzzification*value of 0.727 in the first rank. This implies that video game based on computers will not be the trend in BM learning among foreign students is expected between 2024 - 2028.

Lastly, for item 2.5 the majority of experts agreed with subitem 2.5.2 with a *defuzzification* value of 0.640 in the first rank. This shows thattransfer of nano technology knowledge will be the trend in video game in learning of BM among foreign students as predicted to occur over the years 2019-2023.

The following is the analysis for prediction of suitability of video game type in the aspect of basic skills in implementing BM as a foreign language among foreign students in PHEI.For item 3, there were five sub items as explained in Table 4.

Table 4: Ranking for sub items 3.1 to 3.5on suitability of video game types in learning BM among foreign students

Item	Prediction of the suitability of each type of video game from the aspect of basic skills in Malay language	Fuzzy evaluation	*Defuzzification*	Ranking
3.1	Strategy video games are suitable for use in the aspect of grammar and sentence-building in BM for foreign students.	(14.4,20.4,26.4)	0.680	2
3.2	A*dventure* video games and *puzzle games* are very attractive for use in learning BM for foreign students in the aspect of understanding text in the form of animation and multimedia or *hypermedia*.	(13.4,19.4,25.4)	0.647	5
3.3	Problem solving games are more interesting for application in learning BM for foreign students in the aspect of BM acquisition.	(13.9,19.8,25.8)	0.661	3
3.4	Role playing games and simulation gamesare very suitable for mastering speaking skills or presenting ideas in learning BM among foreign students.	(13.8,19.8,25.8)	0.660	4
3.5	Platformer games are more effective for enhancing the aspect of vocabulary skills in BM by foreign students.	(14.8,20.8,26.8)	0.693	1

Based on Table 4, the majority of experts agree withsubitem3.5 with a *defuzzification value of* 0.693 in the first rank. This shows that the video game platform *platformer game* is more effective in enhancing the aspect of Malay language vocabulary mastery among foreign students. The rankings as agreed to by the expert panel are given in Table 4.

8.Conclusions

Studies on a futuristic curriculum through video game are appropriate to be carried out in order to effect change in the curriculum in the next 5 to 10 years. The result of expert consensus proves that part of the elements of video game playing have potential in implementing learning of BM among foreign students in PHEI as shown by the consensus of experts at the level of 0.60 to 0.80. This means that the expert consensus was at the level of "agree" to "highly agree".

The impact of decision based on expert consensus shows that a new framework for designing curriculum based on potential of video game as a medium of instruction or *scaffolding* in BM language learning for foreign students in PHEI.This study suggests a new education policy be implemented by the relevant stakeholders especially the Higher Education Department and Ministry of Education Malaysia in general to highlight the potential of video games as a teaching aid too in all PHEIs in Malaysia. The language centers and faculties in all PHEIs should see the development of this technology as being capable of making language learning more attractive and interactive for application as a medium for BM language learning among foreign students.

References

Anuradha, D. (2008). *Applying soft system methodology (ssm) for designing malay language learning portal*. Unpublished Master thesis,Universiti Malaya, Kuala Lumpur.

AwangSariyan. (2006). PengajaranbahasaMelayukepadapenuturasing: Matlamatdanpertimbanganstrategi. *JurnalPersatuanLinguistik,7,* 1-15.

Berns, A., Pardo, A. G., & Camacho, D. (2013). Game-like language learning in 3-D virtual environments. *Computers & Education,60,* 210–220.http://dx.doi.org/10.1016/j.compedu.2012.07.001.

Connolly T. M., Boyle, E.A., MacArthur, E., Hainey, T. & Boyle, J.M. (2012). A systematic literature review of empirical evidence on computer games and serious games. *Computers & Education*, 59 661–686. doi:10.1016/j.compedu.2012.03.004

Course Outline LM 1030. (2011). *Bahasa Melayu I untukPelajarAsing.* International Islamic University Malaya (IIUM). Centre for Language and Pre-university Academic Development (CELPAD). 8 August, 2011.

Fa'izahAbd. Manan, ZamriMahamod, & Mohamed Amin Embi. (2009). PenyelidikanstrategipembelajaranbahasaMelayusebagaibahasaasingdalamkalanganpelajarluarnegara. *Prosiding Seminar PendidikanSerantauKe 4 2009* (hh. 259-268).

Fa'izah Abdul Manan, Muhammad Amin Embi, &ZamriMahamod. (2010). KerangkapembangunandanpenilaianmodulbelajarcarabelajarbahasaMelayuuntukpelajarasinginstitusipengajiantinggi Malaysia. *AJTLHE: ASEAN Journal of Teaching and Learning in Higher Education, 2*(2), pp. 59-71.

FuziahRosman, Norlidah Alias, SaedahSiraj, HusainaBanuKenayathullah, AbdRazakZakaria, &GhazaliDarusalam. (2013, October). Potential of video games in learning Bahasa Melayu vocabulary among international university students in Malaysia: A meta analysis of selected journals. *TOJET: The Turkish Online Journal of Educational Technology, 12*(4).

FuziahRosman, ZulFikriZamirMohdMunir, SaedahSiraj, &Norlidah Alias. (2012). Potensipermainan video dalamkurikulum masa depan. In *Proceedings ofThe 1st International Seminar on Quality and Affordable Education* (ISQAE-2012) (pp. 97-120).Kuala Lumpur: University of Malaya.

Gerber, S., & Scott L. (2011). Gamers and gaming context: Relationships to critical thinking. *British Journal of Educational Technology, 42*(5),pp.842–849.doi:10.1111/j.1467-8535.2010.01106.x

Ibanez, M. B., Garcia, J. J., Sergio Galan,S., Maroto, D., Morillo, D., &Kloos, C. D. (2011). Design and implementation of 3D multi-user virtual world for language learning. *Educational Technology & Society, 14*(4), 2-10.

Kebritchi, M., &Hirumi, A. (2008). Examining the pedagogical foundations of modern educational computer games. *Computers & Education,51,* 1729–1743. doi:10.1016/j.compedu.2008.05.004.

LalehAghlara, &NasrinHadidiTamjid. (2011). Theeffect of digital games on Iranian children's vocabulary retention in foreign language acquisition. *Procedia Social and Behavioral Sciences,* 552-560. doi:10.1016/j.sbspro.2011.11.275.

Mohd. RidhuanMohd. Jamil, ZaharahHussin, NurulRabihah Mat Noh, Ahmad ArifinSapar, &Norlidah Alias. (2013). *Application of fuzzy Delphi method in educational research*. In SaedahSiraj, Norlidah Alias, Dorothy Dewitt &ZaharahHussin (Penyt.), *Design and developmental research: Emergent trendsin educationalresearch*. Kuala Lumpur: Pearson Malaysia.

Mok Soon Sang. (2013). *Pedagogiuntukpengajarandanpembelajaran*(Edisi ke-3). Selangor. Penerbitan Multimedia.

Moreno-Ger, P., Burgos, D., Martinez-Ortiz, I., Sierra, J. L., & Fernandez-Manjon, B. (2008). Educational game design for online education. *Computers in Human Behavior,24*(6), 2530-2540. doi: 10.1016/j.chb.2008.03.012.

Muhammad SabriSahrir, &NorAziah Alias. (2011, September). A study on Malaysian language learners' perception towards learning Arabic via online games. *GEMA Online Journal of Language Studies,11*(3).

Muhammad SabriSahrir, Nor Aziah Alias, Zawawi Ismail, &Nurul Huda Osman. (2012, April). Employing design and development research (DDR) approaches in the design and development of online Arabic vocabulary learning games prototype. *TOJET: The Turkish Online Journal of Educational Technology, 11*(2), pp. 108-119.

MuhammetDemirbilek, Ebru Yilmaz, & Suzan Tamer. (2010). Second language instructors' perspectives about the use of educational games.*Procedia Social and Behavioral Sciences,*717-721. doi.10.1016/j.sbspro.2010.12.223.

Nadzrah Abu Bakar,&ElalehNosratirad.(2013). Sustaining vocabulary acquisition through computer game: A case study.*Asian Social Science*; Vol. 9, No. 5; 2013. Canadian centre of science and education, 235-242. doi:10.5539/ass.v9n5p235

Nayar, P. K. (2010). *An introduction to new media and cybercultures*. British library. Wiley-Blackwell.

Norlidah Alias, Mohd. NazriAbdul Rahman,&SaedahSiraj. (2013). Homeschoolingbagikanak-kanak orang asli: Pendekatan fuzzy delphi. Paper presented at the*International Seminar Teaching ExcellenceAnd Innovation*, 25 December, 2013. Garut, Indonesia.

Ornstein, A. C., &Hunkins, F. (2004). *Curriculum foundations: Principles and theory* (4th ed). Boston, MA: Allyn& Bacon.

Piirainen-Marsh, A., &Tainio, L. (2009).Collaborative Game-play as a Site Participation and Situated Learning of a Second Language. *Scandinavian Journal of Educational Research*, 23(2), 167-183. doi:10.1080/00313830902757548.

Prensky, M. (2001). *Digital game-based learning*. New York, NY: McGraw-Hill.

Ranalli, J. (2008). Learning English with The Sim: Exploiting authentic computer simulation games for L2 learning. *Computer Assisted Language Learning*,*21*(5),441-445. doi:10.1080/09588220802447859.

Ricardo Rosas et al. (2003). Beyond Nintendo: Design and assessment of educational video games for first and second grade students.*Computers & Education, 40*,71-94.

Senate Meeting.(2011, September 30). Minutes of the International Islamic University Malaysia 373rd Senate Meeting, Gombak, Selangor.

Shelton, B. E., & Scoresby, J. (2011). Aligning game activity with educational goals: Following a constrained design approach to instructional computer games. Developmental article. *Education Technology Research Development, 59*, 113–138. doi: 10.1007/s11423-010-9175-0.

SitiAfifahSamsuddin,&HasuriaChe Omar. (2011). Pemindahanbahasadalampermainanvideo: Satutinjauandarisegipotensidankecenderunganpenterjemahan. *ProsidingPersidanganPenterjemahanAntarabangsa* ke-13: 1921 Julai 2011, Shah Alam,Selangor.

SitiBaiduraKasiran,&NurulJamilahRosly. (2011). AnalisiskesalahanTatabahasa Bahasa Melayudalamkaranganpelajarasing di sebuahInstitusiPengajianTinggiAwam.*2nd International Language Conference (ILC) Proceeding*.

SitiRadziahAzit. (2005). *Implementation of multimedia elements in learning Malay language*.TesisIjazahSarjanaMudatidakditerbitkan. UniversitiTeknologi Mara.

SitiSaniah Abu Bakar, &SharalaSubramaniam. (2012, November). Pengaruhmotivasi instrumental danintegratifdalampemilihanstrategipembelajaranbahasaMelayudalamkalanganpenuturasing. *JurnalPendidikan Bahasa Melayu – JPBM(Malay Language Education Journal – MyLEJ), 2*(2), 54-61.

Squire, K. (2003). Video games in education.*International Journal of Intelligent Games and Simulation, 2*(1), 49-62.

Tang, S., Hanneghan, M., & El Rhalibi, A. (2009).Introduction to Games-Based Learning.In T. Connolly, M. Stansfield, &L. Boyle (Eds.),*GamesBased Learning advancements for Multi-Sensory Human Computer Interfaces:Techniques and effective practices* (pp. 1-17). New York, NY: Hershey/IGI Global.

Walsh, C. (2010). System-based literacy practices: Digital games research, gameplay and design.*Australian Journal of Language and Literacy*,*33*(1), 24-40.

Yildiz Turgut, &PelinIrgin. (2009).Young learners' language learning via computer games. *Procedia- Social and Behavioral Sciences, 1,* 760-764. doi.10.1016/j.sbspro.2009.01.135.

Yong, C. C., SitiSaniah Abu Bakar, Chan, T. H.,&Vijayaletchumi, S. (2010). Strategi pelajar antarabangsa belajar bahasaMelayu di institusipengajiantinggi. *Proceedings of The 4th International Conference on Teacher Education; Joint Conference UPI & UPSI Bandung, Indonesia,* 8-10 November 2010.

Yong, C. C., &Vijayaletchumi, S. (2012, May). Analisis kesilapan dalam pembelajaran Bahasa Melayuolehpelajarasing.*GEMA Online Journal of Language Studies, 12*(2).