

POTENTIAL OF VIDEO GAMES IN LEARNING BAHASA MELAYU VOCABULARY AMONG INTERNATIONAL UNIVERSITY STUDENTS IN MALAYSIA: A META ANALYSIS OF SELECTED JOURNALS

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ABSTRACT

This study uses a meta analysis to analyze several current articles published by selected journals by focusing on studies related to the potential of video games in Bahasa Melayu vocabulary learning by international students. Among the articles are those in journals such as *Computers and Education*, *Computers in Human Behavior*, *Education Technology Research Development*, *Procedia Social and Behavioral Sciences*, *Australian Journal of Language and Literacy*, *Computer Assisted Language Learning*, *Educational Technology & Society*, and *Scandinavian Journal of Educational Research* published between 2003 and 2011. For this study, only 15 articles were focused on out of 33 articles in journals published between 2003 until 2011. Nevertheless, only 9 articles were identified using the key words video games and language learning. In terms of methodology, most of the articles were literature reviews followed by case studies and experimental studies. Some articles combined quantitative and qualitative approaches. Findings from all the articles reviewed show that video games have potential as effective teaching aids and are capable of motivating students in language learning.

Keywords: Video games, Vocabulary, Language learning, Meta Analysis

INTRODUCTION

Recent commercial video games have long been in the market since they were first introduced in 1958 such that today they represent various types or genres (Kudler, 2007). Each genre of video game has its story line or narrative in various levels and characteristics. Part of the traditional video game contains genres such as 'first-person shooter', 'role-playing', 'action', 'adventure', 'sports', and racing as well as strategy.

If seen from reality and research carried out in the west, many agree that video games have educational value and the potential for use as effective and enjoyable teaching aids as stated by Papastergiou (2009) and Moreno (2008). Discussion related to the potential of video game in education was done by Prensky (2001, in Papastergiou, 2009); the conclusion was that electronic video games have attracted the interest of academics who see the potential of video games as giving motivation to teenagers if the games are integrated with learning activities as stated by Prensky who had introduced electronic games as "digital game-based learning".

Studies by researchers in curriculum and instructional technology have found that computer and video games are among the most popular in designing video games suitable for learning needs (Squire, 2003). The views of other researchers such as (Betz, 1996; Jayakanthan, 2002; Jenkins & Klopfer, 2003; Prensky, 2001; Squire, 2003; Squire, 2005) as cited by Moreno (2008) on video games is that one way to enhance motivation and quality in learning is through use of video games as a learning tool. Video games represent an enjoyable and attractive element and this advantage should be absorbed in learning.

Papastergiou (2009) stated that several researchers agreed that the learning climate with video will be more enjoyable and effective compared with the traditional learning environment. Oblinger (2004) as cited by Papastergiou (2009) stated that video games have potential in changing the learning environment to one that is better based on several reasons; a) such games are multi-sensory, active, offer novel experiences, and problem based learning; b) give and increase experience and existing knowledge; c) provide fast feedback for hypothesis testing and learning based on action research; d) give opportunity to students to undertake self-assessment through scores; and e) enhance the social interaction environment between players or students.

Gamers can learn how to interact among themselves through their environment such as forming player groups online or "game-related information and resources" (Papastergiou, 2009). Several studies that have evaluated the use of video games in various academic disciplines such as mathematics, science, language, geography, and computer science have shown positive effect on student motivation and effective learning for achieving curriculum objectives (Papastergiou, 2009).

Furthermore, Tuzun (2008) stated that the future scenario for trends in video game technology in geography education is the application of 'MUVES.' Researchers also have combined "three-dimensional (3D) environments" in designing computer video games in geography learning. Virvou, Katsionis, and Manos (2005) in Tuzun (2008), for example, have created the computer video game VR-ENGAGE for teaching geography subject to grade four students.

Besides that, the effectiveness in designing educational video games must be achieved by balancing the educational value with enjoyment in learning. According to Moreno (2008) this is because the teaching and learning process (T&L) requires effective teaching techniques to achieve learning objectives.

Three types of initiatives were suggested by Moreno to achieve effectiveness are: 1) multimedia approach is very much related to content presentation; 2) using existing video games in the market for learning; and 3) existing video games that have been developed must be balanced between education and enjoyment or pleasure in learning.

Hence, the learning of Bahasa Melayu now must change in the application of the latest technology so that it is aligned with developments in video game technology that has been integrated with various academic disciplines. With the use of this teaching aid, language learning can be implemented more effectively besides increasing student motivation.

Background on Bahasa Melayu Subject for International Students

Rusdi Abdullah (2001) stated that the flood of foreign students who come for further studies in public (IPTA) and private (IPTS) tertiary institutions in Malaysia is more pronounced. Consequently, the Education Act Amended 1995 clearly states that Bahasa Melayu is compulsory to be taught to all foreign students undergoing studies in IPTS. The above teaching is aimed at exposing students to the basics of Malay language such as phonology and spelling system, basic vocabulary, casual conversation, sociolinguistic aspects, reading and understanding simple examples and writing. According to Rusdi also, adult foreign language students have exceeded the critical period in the language learning process especially in mastery of sound (phonology) but they have advantages in other language aspects. Their knowledge of their mother tongue can help facilitate the learning process such as analysis of morphology aspects, syntax, and semantics of the language.

Awang Sariyan (2006) viewed that the Bahasa Melayu teaching program for international students is to fulfill the needs arising from the role of Bahasa Melayu as a language that is studied in various centers of learning all over the world. Bahasa Melayu has its own position in the development of major world languages until there is a need for its teaching to foreign language learners although not as widely as the teaching of English.

Based on the experience of the International Islamic University Malaysia (IIUM), the Bahasa Melayu course for foreign students is compulsory for all foreign students at the university. According to Siti Baidura Kasiran and Nurul Jamilah Rosly (2011) in the context of Malay language learning, many foreign students taking first degree courses at IIUM learn BM as a third language. These students not only have to learn BM, they must pass it as a requirement for graduation. The Bahasa Melayu course for foreign students was made compulsory for all foreign students at IIUM as decided by the Senate Meeting in April 1991.

This course was split into two levels, Bahasa Melayu I for Foreign students (LM 1010) and Bahasa Melayu II Course for Foreign Students (LM 1011). The credit hours for this course is 50 minutes for every meeting/class and classes are held twice a week (Siti Baidura Kasiran & Nurul Jamilah Rosly, 2011).

Fa'izah Abd. Manan, Mohamad Amin Embi and Zamri Mahamod (2010) stated that the National Accreditation Council (LAN) or now called Malaysian Qualification Agency (MQA) has created the National Language Syllabus specially for foreign students. Among the aims and objectives of teaching Bahasa Melayu to foreign students in IPT in Malaysia are to enable them to master the basic skills in Malay language. Among the aims and objectives are:

- i. Know the speech system, rumi spelling system, vocabulary and grammar of Malay language;
- ii. Able to listen to and understand conversations in various daily situations;
- iii. Able to speak and understand simple reading materials and;
- iv. Able to express ideas and feelings in verbal and written form.

STATEMENT OF THE PROBLEM

Fa'izah Abdul Manan et al. (2010) noted that most foreign researchers of BM in Malaysia who follow the BM course in tertiary institutions found such courses to be facing problems, weak, and fail to impart the requisite

BM skills in the stipulated period. The present group of researchers quote the statement (Asmah, 2003; Fai'zah et al., 2009; Marzalina, 2005) that in many higher education institutions the method of teaching BM to foreign students still uses conventional teacher-centered approaches. According to Awang Sariyan (2006) in Fai'zah Abdul Manan et al. (2010) such approaches are deemed successful and can be determined as effective approaches after categorization by level and grouping according to the aims and needs of the foreign students who are learning BM.

Several researchers in Malaysia and the West concur that BM is a difficult language to master as a foreign language if the student learning it is not interested and lacking in confidence, has no need or motivation for the BM being learned (Jyh Wee Sew, 2005; Metzger, 2009; Pogadev, 2005, in Fai'zah Abdul Manan et al., 2010).

Based on the above problem situation, the Bahasa Melayu subject for international students is very much in need of teaching aids that are effective in overcoming the disadvantages in the use of conventional approaches in teaching and learning. Similarly with the problem of Bahasa Melayu that is said to be difficult to master resulting in students lacking in confidence, not wanting and not being motivated; all these might be overcome using video games as effective teaching aids capable of enhancing student motivation.

In Malaysia, many video games of various genres are in the market for commercial use and such games are the trend for teenagers and children today. In fact, the development of video game has crept into Bahasa Melayu learning especially for foreign students. The potential of video game in the curriculum has been studied at length by researchers and curriculum experts in the West who have long developed video games in education (e.g., Gee, 2003; Moreno, 2008; Papastergiou, 2009; Prensky, 2001; Squire, 2003).

Behind the debate on the issue of video game playing lacking potential in education as stated by Van Eck (2006, as cited by Moreno, 2008) who touched on the cost of developing video games, the difficulties in integrating video games into the curriculum; and Michael dan Chen (2006) who mentioned the need to evaluate the quality of video games in the learning process; Moreno (2008) suggested several alternatives or new approaches in focusing on a design for video games. Many video games of various genres in the industry have been identified as suitable for education. Existing commercially available video games also have potential for adaptation for use in learning; for example, the video game known as *SimCity* and *Civilization Sagas*.

In the context of language learning, studies on video games have been done by many researchers (e.g., Laleh & Nasrin, 2011; Muhammet Demirbilek, Ebru Yilmaz, & Suzan Tamer, 2010; Piirainen-Marsh & Tainio, 2009; Ranalli, 2008; Walsh, 2010; Yildiz Turgut & Pelin Irgin, 2009) and these have touched on the types of video games such as *The Sims*, *Massively Multiplayer Online Role Playing Games* (MMORPGs) and effectiveness of video games in language learning especially in English as a Second Language or English as a Foreign Language. Most research studies by the researchers mentioned were in the form of literature reviews and discussions. Studies have to be carried on with design of video game or developing video game prototype suited to language learning other than *The Sims*, MMORPGs and online video games.

Nevertheless, in Malaysia there exists a study by Kamisah Osman and Nurul Aini Bakar (2011) on the implementation and limitations of computer video games in Malaysia from the perspective of Chemistry subject, showing that curriculum design in video games is still new and in the research stage in Malaysia.

Video game in language learning was done on Arabic subject by Muhammad Sabri Sahrir and Nor Aziah Alias (2011). Their findings show that online video games succeeded in enhancing achievement, motivation and positive attitudes of students toward Arabic language learning. However, the video games developed were still limited; students hoped that these video games will continue to be used as teaching aids in Arabic language learning.

Because studies on video game playing in language learning were done mostly on English and Arabic, and because the approach for teaching BM to foreign students is still conventional in nature, we feel that this study is necessary to investigate the potential of video games in the aspect of BM vocabulary learning among international students. Hence, this study anticipates video games will become effective learning aids capable of enhancing the motivation in learning of Bahasa Melayu among international students.

OBJECTIVES

In general, this study is aimed at investigating the potential of video games in Bahasa Melayu vocabulary learning for foreign students. Shih, Feng, and Tsai (2008) stated that meta analysis is the best way to identify articles very much related to the field of study.

This study is implemented to answer the following research questions:

1. What is the percentage of research papers related to the chosen topic?
2. What were the titles of selected articles related to the potential of video games in learning Bahasa Melayu vocabulary for international students?
3. What methods were used in the selected articles related to the topic of research?
4. What is the comparison in research findings obtained from the articles?

METHODOLOGY

This study uses meta analysis to evaluate past research articles. Besides qualitative analysis, this study uses descriptive statistics to analyze data. According to Lipsey and Wilson (2001) meta analysis is a systematic technique for describing, analyzing, making conclusions on quantitative studies for some topic or question.

This study analyzes several current articles published with focus on studies related to the potential of video game in the Malay language (BM) curriculum for international students. Among the articles obtained were those from the journals *Computers and Education (CE)*, *Computers in Human Behavior (CHB)*, *Education Technology Research Development (ETRD)*, *Procedia Social and Behavioral Sciences (PSBS)*, *Australian Journal of Language and Literacy (AJLL)*, *Computer Assisted Language Learning (CALL)*, *Educational Technology & Society (ETS)*, and *Scandinavian Journal of Educational Research (SJER)*. Among the reasons for choosing these journals were: the articles in the journals were categorized under the journal articles of the Institute for Scientific Information (ISI) and development article and the articles were related to the theme title namely video game technology and curriculum or language learning. Meanwhile, only 15 articles were chosen from 33 articles published in the journals from 2003 until 2011 to be focused on in this study. However, only 9 articles were obtained using the key words video game in language learning.

RESULTS

Analysis of Articles

The research shows a total of 15 articles out of 33 published in eight journals between 2003 and 2011 were related to the potential of video game in vocabulary learning of Malay language for foreign students. Data were analyzed according to year of journal publication as shown in Table 1.

Table 1: Percentage of 15 Published Articles According to Selected Journals in the Meta Analysis (2003- 2011)

	2003	2007	2008	2009	2010	2011	Total (%)
CE	1(6.7)			1(6.7)			2(13.3)
CHB			1(6.7)				1(6.7)
ETRD		1(6.7)				1(6.7)	2(13.3)
PSBS				1(6.7)	2(13.3)	1(6.7)	4(26.7)
AJLL					2(13.3)		2(13.3)
CALL			1(6.7)		1(6.7)		2(13.3)
ETS						1(6.7)	1(6.7)
SJER					1(6.7)		1(6.7)
Total	1(6.7)	1(6.7)	2(13.3)	2(13.3)	6(40)	3(20)	15(100)

Note. **CE**– *Computers and Education*, **CHB** – *Computers in Human Behavior*, **ETRD**- *Education Technology Research Development*, **PSBS** - *Procedia Social and Behavioral Sciences*, **AJLL**- *Australian Journal of Language and Literacy*, **CALL** - *Computer Assisted Language Learning*, **ETS** - *Educational Technology and Society*, **SJER** - *Scandinavian Journal of Educational Research*

Based on Table 1, the journals CE, ETRD, AJLL and CALL each recorded 13.3 percent, while CHB, ETS and SJER recorded 6.7 percent, followed by PSBS at 26.7 percent. From 2003 until 2011, the year 2010 recorded the highest percentage for articles in the selected journals, as much as 40 percent. Among all the eight journals selected, PSBS recorded the highest percentage of published articles on the topic, namely 26.7 percent.

Titles of selected articles related to potential of video games in learning of Bahasa Melayu vocabulary for international students at Malaysian higher learning institutions

Subsequently, the title of the article was analyzed according to category. Studies were analyzed according to themes for categories in the articles reviewed. Among the categories derived from articles are:

Designing video games in education

Several views of researchers regarding video games with video educational value and enjoyable were stated by Aldrich (2004) in Moreno (2008); Aldrich stated that feedback received from students on video games was positive; students said the games enhanced their motivation. For example, ‘The monkey wrench conspiracy’ was

of the type ‘first-person shooter’ that used computer as a teaching aid. The same with ‘Virtual Leader’ that focused on teaching a complex subject such as the role of a leader. Video games in the form of ‘action’ such as ‘Slow Pace’, ‘Reflection’, ‘Study of Environment’, ‘Problem-solving make point’ and ‘Click adventure games’ are relevant from the pedagogical perspective.

Moreno et al. (2008) suggested that video game design should balance the pedagogical needs with the enjoyment factor that is difficult to understand; the second aspect is an issue more in the high profile entertainment industry. According to Moreno (2008) in general design of games can support pedagogical approaches with several characteristics: adaptation to real time, suited to learner needs, evaluation and grading in play as well as integration with online learning.

Brett and Jon (2011) said design of educational video game can enhance student motivation especially grade 9 students in English subject. Ricardo Rosas et al. (2003) observed that design of video game showed positive effect on student motivation through use of video game as an experimental tool in the experimental group for the subjects of mathematics, reading, and English language comprehension and spelling.

An Interactive Learning Environment

Video games are one of the channels of interactivity through the virtual world. A new learning environment has been shaped through video games online or through the internet. Ahmer Iqbal, Marja Kankaanranta and Pekka Neittaanmaki (2010) opined that the virtual world is able to enhance the need for interaction through social networks and heighten the experience of video game play.

Apperley (2010) suggested that cyber text shapes complex interaction or an action allowed in video games. According to Apperley, video games allow students to shape a wider social context. Besides that, application of virtual 3D through 3DVWs is able to expose students to interactive and collaborative learning environments (Ibanez et al., 2011).

Video Games Enhance Student Motivation

Dickey (2007) noted that Massively multiplayer online role-playing games (MMORPGs) are able to enhance students’ intrinsic motivation. Dickey is supported by Peterson (2010) who found that MMORPGs showed enhancement of motivation and enjoyable learning in students through videogame-based interaction.

Papastergiou (2009) stated that video games based on physical and health education subject have the potential to motivate students to adopt a healthy and active lifestyle. Laleh Aghlara and Nasrin Hadidi Tamjid (2011) meanwhile found that students from their experimental group who learned language using video games were more motivated as compared to the control group taught using conventional methods.

Video Games in Language Learning

Based on findings of the study, video game use in language learning proved that video game playing has the potential to be an effective learning aid. Walsh (2010) noted that experiential learning shows that students as players practised systematic literacy practices through video game play in learning English curriculum. Yildiz and Pelin (2009) endorsed the effectiveness of video game playing in teaching based on online video technology based environment especially in learning vocabulary skills.

The use of video game as instructional support tool can also give positive effect on the way computer games are used in learning, the characteristics of play, appliances and class software infrastructure as well as the perception and attitude of teachers and students toward computer video games (Muhammet Demirbilek, Ebru Yilmaz, & Suzan Tamer, 2010). Ranalli (2008) stated that computer simulation games such as *The Sims* have potential for use in language learning programs especially in learning English as a Second Language (ESL) for students with varied backgrounds. Students are actively involved in collaborative video game activities in language subjects having flexible resources and students can undertake self learning in operating and experiencing playing of the video game (Pirainen-Marsh & Tainio, 2009).

Methods Used in Selected Articles

Data analysis of 15 articles found that all used one out of 5 methods consisting of literature review, case study, interview, experiment and mixed method.

Based on Table 2 there were 5 articles using literature review methodology, representing 33.3 percent of articles selected in the study; case study and experiment were represented by three articles or 20 percent respectively. Only two articles used the interview and mixed methods, representing 13.3 percent respectively.

Table 2: Methodology Used in 15 articles

No.	Methodology	Percentage (%)
1.	Literature review	33.3
2.	Case study	20
3.	Interview	13.3
4.	Experiment	20
5.	Mixed method	13.3

Based on Table 1, analysis showed the percentage of research findings obtained from the 15 articles. The findings obtained found that there were 8 types of potential video games discussed by the researchers in the articles. From the analysis, motivation recorded the highest percentage (40%), followed by interactions in social networks and experience of the students (13.3 % respectively), followed by other potentials such as pedagogy and enjoyment, effectiveness of online video games, positive instructional support tool, potential for use of computer simulation in teaching & learning (T&L) and interactive and collaborative – all of which charted the lowest percentage of 6.7 percent.

Table 3: Comparison between Findings on Video Game Potential in Articles Selected

No.	Potential of video game	Percentage(%)
1	Motivation	40
2	Pedagogy and Enjoyment	6.7
3	Social network interaction	13.3
4	Student experience	13.3
5	Effectiveness of online video game	6.7
6	Instructional tool for positive support	6.7
7	Potential of computer simulation in T&L	6.7
8	Interactive and collaborative	6.7

Hence, there were 15 articles out of 33 articles selected in this study, while 9 articles were obtained using key words video game and language learning. Meta analysis study is appropriate for evaluating the strengths and weaknesses for every article studies. This meta analysis represents a collection of all articles related to the topic and can be categorized as thematic whether according to method, title, sample and study findings in an effective way. Although meta analysis is only descriptive in nature without using field studies and real data, its effectiveness lies in evaluating and providing beneficial critique and encouraging other researchers to adopt an action plan to fill existing gaps in the literature with continuous research.

IMPLICATIONS AND CONCLUSIONS

According to Shih, Feng, and Tsai (2008), a meta analysis not only helps us to identify the title of the study, methods and latest trends but also enables us to know the influence and factors in the matters being investigated. The findings were collected in thematic form and were then summarized to see the overall direct effect of the article studied. Apart from qualitative analysis, this study also uses descriptive statistics to analyze data. Based on the findings, of eight selected journals, the journal *Procedia Social and Behavioral Sciences* (PSBS) recorded the highest percentage of 26.7 from the aspect of research paper analysis. From the viewpoint of method most preferred, 5 out of 15 articles used the method of literature review which recorded the highest percentage (33.3 percent). Comparative analysis showed that articles on motivation recorded the highest percentage or 40 percent. The overall finding from the articles was that video games have potential as effective teaching aids capable of enhancing student motivation in language learning.

Hence, this study helps researchers in identifying the limitations and gaps between previous research and the researcher’s study. The researcher agrees with Yildiz and Pelin (2009) who stated that video game shows the effectiveness in language instruction based on the environment of online video game technology especially in learning language in vocabulary skills). The researchers also agree with the statement of Brett and Jon (2011) suggesting that design of educational video games is able to enhance motivation in students especially in Grade 9 students of English subject. Similarly Ricardo Rosas et al. (2003) stated that the design of video game has a positive effect on student motivation through the use of video game as an experimental tool for the experimental group in mathematics subject, reading, understanding and spelling (English). Hence, this meta analysis encourages researchers to study what previous researchers have not studied before and help the researchers to

obtain further information and subsequently carry out research on the potential of video games in learning Bahasa Melayu vocabulary among international students.

REFERENCES

- Ahmer Iqbal, Marja Kankaanranta, & Pekka Neittaanmaki. (2010). Experiences and motivation of the participation in virtual worlds. *Procedia Social and Behavioral Sciences* 2, 3190 - 3197. doi: 10.1016/j.sbspro.2010.03.488
- Apperley, T. (2010). What games studies can teach us about videogames in the English and Literacy classroom. *Australian Journal of Language and Literacy*, 33(1), 12-23.
- Awang Sariyan. (2006). Pengajaran Bahasa Melayu kepada penutur asing: Matlamat dan pertimbangan strategi. *Jurnal Persatuan Linguistik*, 7, 1-15.
- Brett, E. S., & Jon, S. (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
- Dickey, M. D. (2007). Game design and learning: A conjectural analysis of how massively multiple online role-playing games (MMORPGs) foster intrinsic motivation. *Educational Technology Research Development*, 55, 253-273. doi: 10.1007/s11423-006-9004-7
- Gee, J.P. (2003). *What video games have to teach us about learning and literacy*. New York: Basingstoke, Palgrave Macmillan.
- Fa'izah Abdul Manan, Muhammad Amin Embi, & Zamri Mahamod. (2010). Kerangka pembangunan dan penilaian modul belajar cara belajar Bahasa Melayu untuk pelajar asing institusi pengajian tinggi Malaysia. *AJTLHE: ASEAN Journal of Teaching and Learning in Higher Education*, 2(2), pp. 64-76.
- 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.
- Kamisah Osman, & Nurul Aini Bakar. (2011). Implementation of Educational Computer Games in Malaysian Chemistry Classroom: Challenges for Game Designers. *Recent Researches in Education*. Retrieved from www.wseas.us/e-library/conferences/2011/Penang/.../EDU-18.pdf
- Kudler, A. (2007). *Timeline: Video Games*. Pearson Education. Retrieved from <http://www.infoplease.com>
- Laleh Aghlara, & Nasrin Hadidi Tamjid. (2011). The effect 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
- Lipsey, M. W., & Wilson, D. B. (2001). *Practical meta-analysis*. Thousand Oaks, CA: Sage. Retrieved from <http://en.wikiversity.org/w/index.php?title=Meta-analysis&oldid=873348>
- Moreno-Ger, P. et al. (2008). Educational game design for online education. *Computers in Human Behavior*. doi: 10.1016/j.chb.2008.03.012
- Muhammet Demirbilek, 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
- Papastergiou, M. (2009). Exploring the potential of computer and video games for health and physical education: A literature review. *Computers and Education*, 53, 603-622. doi:10.1016/j.compedu.2009.04.001
- Peterson, M. (2010). Massively multiplayer online role-playing games as arenas for second language learning. *Computer Assisted Language Learning*, 21(5), 441-445. doi:10.1080/09588221.2010.520673
- 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: 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.
- Rusdi Abdullah. (2001). Kecekapan menulis dalam bahasa melayu sebagai bahasa asing. *Prosiding Seminar Sehari Jabatan Bahasa Melayu dan Terjemahan*, 65-75.
- Shih, M., Feng, J., & Tsai, C. C. (2008). Research and trends in the field of e-learning from 2001 to 2005: A content analysis of cognitive studies in selected journals. *Computers and Education*, 51, 955-967. doi: 10.1016/j.compedu.2007.10.004
- Siti Baidura Kasiran, & Nurul Jamilah Rosly. (2011). Analisis kesalahan tata bahasa Bahasa Melayu dalam karangan pelajar asing di sebuah institusi pengajian tinggi awam. In *2nd International Language Conference (ILC) Proceeding*.

- Squire, K. (2003). Video games in education. *International Journal of Intelligent Simulation and Gaming*, 2(1), 49-62.
- Tuzun, H., et al. (2008). The effects of computer games on primary school students' achievement and motivation in geography learning. *Computers & Education*.doi: 10.1016/j.compedu.2008.06.008
- Walsh, C. (2010). System-based literacy practices: Digital games research, gameplay and design. *Australian Journal of Language and Literacy*, 33(1), 24-40.
- Wikipedia. (2012). *Meta-analysis*. Retrieved from <http://en.wikipedia.org/wiki/Meta-analysis>
- Yildiz Turgut, & Pelin Irgin. (2009). Young learners' language learning via computer games. *Procedia- Social and Behavioral Sciences*, 1, 760-764. doi.10.1016/j.sbspro.2009.01.135