
The Digital Game for the Learning of Reading Skill

Dodi Erwin Prasetyo*

Universitas Bakti Indonesia, Banyuwangi, Indonesia

ABSTRACT

The utilization of digital video game was rarely applied for the reading skill. Consequently, there were still no research exploring the integrations of the digital game and the learning of reading skill for long periods, as the jargon of lifelong learning. Therefore, this paper aimed at enriching the perspectives of the integrations of the digital game and a reading skill, at exploring the pedagogical perspectives towards its integrations and at discussing the dilemmas the digital game for teaching and learning a reading skill. This study employed qualitative-interpretative design, while the data were gathered via library research without any participants or respondents. The results highlighted three points. The first point was that the integrations of reading skill through the digital game had to consider the digital game values, the digital game patterns and the reading skill components. The second point was that the pedagogical perspectives had to ponder games' instructions, teachers' roles and students' roles. The third point was dilemmas toward those integrations which were classified as the psychological and pedagogical effects both positively and negatively.

ARTICLE INFO

Paper type

Review Article

Article History

Received : 27/08/2021

Revised : 05/12/2021

Accepted : 07/01/2022

Keywords

- The digital game
- Reading skill
- Pedagogy
- Psychological
- Higher Education

1. Introduction

The current decade, the booming of digital media for the teaching and learning process has been spread. The integration of digital game and learning have been ever promoted in this current decade (Aljifri & Elyas, 2017; Alsayegh, 2016; Cornillie, Thorne, and Desmet, 2012; Hwang-Wu, 2012). Roger & Johnson (2016) analyzed the pattern of players of the video game. They found that most of the players felt enjoyed during playing video games and they could learn new vocabulary within video game's instructions. They also added that the participant got great advantages such as improving the several skills of L2 and interacting with native speakers of English through the video games. Another study was by Alsayegh in 2016. He examined the side impacts of video game for students of university in terms of some problems emerged and their perceptions for video game. He pointed out that some contents of video game were improper. He also underlined those students had positive agreement for integrating video game for their learning of English. Al-jifri and Elyas (2017) explored on the possible correlations between video game and English language acquisition. They found that the participant more motivated and more positive impacts on the language acquisitions and language productions. Those were because covered as the educational and recreational learning. The different perspectives came from Cornillie, Thorne, and Desmet (2012). They argued that not all learners were gamers which also could be assumed that not all of them had positive attitude toward video game for learning. Hwang-Wu (2012) also mentioned that most researches commonly focused on the perceptions, motivations and attitudes.

Some study investigated the utilization of the digital game for a reading context. Angraeni, Chuzaimah & Nasir (2019) conducted the research of vocabulary acquisition through online game for 30 students of university. They found that students comprehend the meaning of new vocabulary through playing game and through translating into L1. Sari (2017) examined the reading comprehension of students through game book as digital media. She realized 67 students as participants with the research design of quasi experimental. The finding underlined that the experimental group has higher t-value (4.028) than the control group (1.66). It

* E-mail addresses: ddikrwn@gmail.com

asserted that game book mobile effectively booster up students reading comprehension of narrative text. Another study by Ronimus et al., (2014) led the research for the children's engagements in the digital game for reading. They involved 138 children. They found that children enjoy Graphogame with less frequent. However, the level challenge has no significant effects to children. Ronimus et al., (2019) examined the digital game based for struggle readers. They engaged 37 participants. They highlighted that the digital game intervention through training – letter sound and word level reading boosts reading performance. Shahriarpour and Kafi (2014) investigated the digital game for learning vocabulary. They acquired that the digital game affects positively to learners. Another study is by Ningtyas (2016). She employed video game as the digital game to measure the reading comprehension of students. She employed intermediate students and action research. She briefly stated that video game has no effect to students' reading comprehensions. Mostly the findings gain positive improvements toward the reading skill through the digital game.

Many studies suggest to apply the virtual game because learners can move freely, solve problems, finish the goals, motivate, develop higher thinking, enhance cognitive process, permit real life situation, and permit immersions in the game (Clark, Tanner-Smith, & May, 2014; Hainey et al., 2011; Prensky, 2010). All of these can be assumed that although there are many studies which prove the positive results of the use of the video game during L2 learning. However, it is still questionable to utilize the digital game to learn a reading skill for long periods. Therefore, this paper aims at exploring on the considerations of integrating the video game with reading skill, what pedagogical perspectives toward the integration of the video game and the reading skill, and the dilemmas to apply the digital game for the learning of reading.

2. Methods

This study aimed at exploring the integrations of the digital game and reading skill, in terms of the considerations, the pedagogical perspectives and the dilemmas of the integration between two subjects' matters. Hence, this study employed qualitative-interpretative design, while the data were gathered via library study to arrange and interpret the data in order to promote and result new point of views (George, 2008). In addition, by Sugiyono (2012), library research is through collecting many references from many research results to evolve new theoretical framework in the social value, cultural, norm and education fields. The data were in forms of research paper, journal, book and so forth which related to the study without any research participants or respondents (George, 2008)

3. Results and Discussion

The results of this study underlined three points, as follows: 1) the consideration of the integrations between the digital game and the reading skill, 2) the pedagogical Perspectives of the digital game and the reading Skill, and 3) the dilemmas toward the utilizations of digital game for the learning of reading.

3.1 *The Considerations of the Integrations of Digital Game with the Reading Skill*

In this digital era, the learning reading activities can be explored not only in the classroom but also in the outside of classroom including through playing digital game. Hwang & Wu (2012) postulated that mostly study toward digital game or certain game only focusing in the problem solving within and skills improvements such as students' motivations, attitudes and perceptions. There were still rare researches which proposed how designed the methodology of learning explicitly for the digital game with the reading skills. Antzaka et al., (2017) led the research on the action video game (AVG) for reading performance. They involved thirty-six adults' readers in France. They dissevered into two groups, frequent players AVG and non-Players. They revealed that frequent AVG players perform better. The findings pinpointed that the game performance highly links to the reading performance. The ability of teachers to operate the digital game has to be taken account. Teachers require the guidelines and instructions to support their innovative teaching process through the digital game. Visual attention (VA) is as number of visual appearances in the digital game (i.e. words in the game instruction). It correlates to the reading performance (Bosse, & Valdois, 2009). Larger VA span will increase the recognition of the students to process familiar and unfamiliar words which results the high-speed reading ability. Thus, students with higher VA more easily comprehend words or sentences (i.e. familiar and unfamiliar words) and performance reading faster (Prado, Dubois, & Valdois, 2007).

The e-learning considers as the parts of the latest learning methods. It allows learners and teachers to bear the latest update technology, problem-solving, collaborative learning, and so forth which relate to the

social life abilities (Bates, 2011). The game contained certain necessary things which could involve and focus the students within actively. Hung and van Eck (2010) alluded that between the instructional learning establisher and digital game developer should collaborate and discuss further to achieve better learning outcomes for integrating the digital game and language skills. Those collaborations are worthy required to handle up some stumbles during the learning process. Those obstacles could be time constraint, inappropriate game content, and lack of educational digital game (Alsayegh, 2016; Chen & Yang, 2013). Livingstone & Hollins (2010) underlined some technical standards toward the digital game for learning like 3D animations, mobile devices, and so forth. To achieve better goals in the digital game and reading skill, the compositions of the integrations both of them are provided by considering some factors. Leaning (2015) argued that the gamification in the learning should augment fun, relax learning atmosphere, be visible learning progress and goals, and feel greater ownership of learning. This is to raise students' enthusiasm within (Hakulinen, Auvinen & Korhonen, 2015). Hence, the involvements of learners actively in the digital study must be engaged. The reading skill which associated with the digital game rarely analyses further in terms of how they interconnect and affect each other. Due to some previous study, the integrations of digital game and reading components should be carefully considered by some factors, as follows:

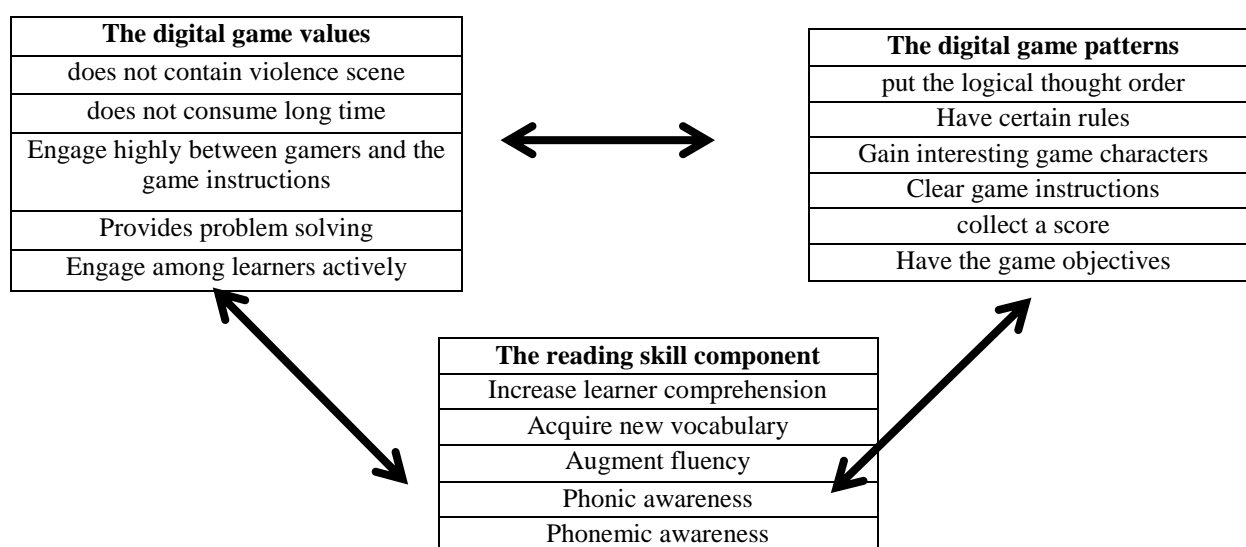


Figure 1. Factors integrating the digital game and reading skill

These concepts figure out that the considerations of inserting the digital game for the reading skills are to trait positively students' mental and social life skill. This is in line with Lee and Hammer (2011) who pinned that the digital game concerns on the mental and social life. When students motivate to involve in the reading skill through the digital game, they will actively participate in the learning of reading. The motivation closely relates to participations, good learning environments, and enthusiasm (Dörnyei & Ushioda, 2011; Goehle, 2013; Reeve, 2012).

3.2 The Pedagogical Perspectives of the Digital Game and the Reading Skill

Since the demanding of the technology evolvments, the teaching and learning processes are affected by its evolvments. One of them is by developing digital game for reading skill. However, there were rare previous researches discussing about that. E-learning allows students to improve their social knowledge, the use of technology, problem solving, collaborative learning and lifelong learning. Students' boredoms in the learning process appear because of the lack of the innovations of the learning media. In the learning reading skill, commonly teacher will use e-book and conventional book. Clark, Tanner-Smith, & May (2014) pointed out that the game which is augmented of the designed improved student interest in learning. This finding highlighted that the design of game had to be attractive. The game contents for the educational media also have to be made appropriately with cognitive and motivational sides. The lack evaluations on the game contents and instructions potentially leads to the attenuated of cognitive and motivations. Bates (2011) underlined that the e-learning exposures students on social skill, the utilization of technology, independent learning, searching

information, problem-solving, collaborative learning, personalization and life-long learning. Some game provides the learner on the simple game content, without complex mission within. However, it is suitable for students to enhance their reading skill by following the instructions.

The integrations digital games for the educational media are as complex processes. Van Staalduinen and De Freitas (2011) pointed out several indicators for its integration, namely learners specific, context, pedagogy, and representation. Learners' specific was defined about the challenge, the conflict and the progress. The context was remained as fantasy, goals, language, and mystery, pieces of player, rules and theme. Meanwhile, pedagogy defined as the parts of the adaptations, the feedback, the instructions and the safeties. The representation refers to the action, the control, the interaction, the sensory – stimulations.

Game –based learning is a complex process. The roles of game are as the equal importance with the roles of teachers. Lifelong learning stresses on the learning not only in the classroom but also in the outside of the classroom. Game – based learning is suitable to apply in the outside classroom. After that, students can report their game progress, for example reporting in the forms of written projects, completing reading tasks, and so forth. Hence, the developments brief lesson plan must be integrated among the game, participants or students, teachers and pedagogical aspects.

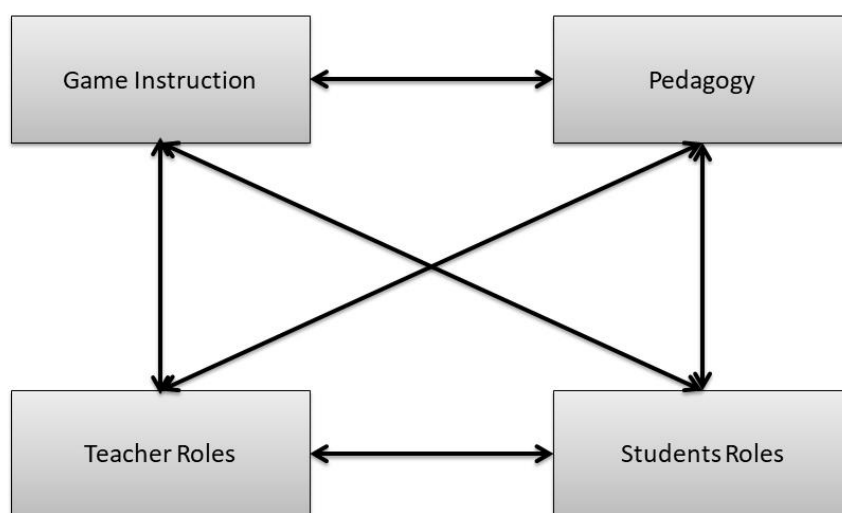


Figure 2. Pedagogical overview for integrating the digital game and reading skill

There are some considerations in the use of digital game for English learning. The first is that it is appropriate with students' grade or level. The second is that the instructions within the digital game are clear, thus the students can achieve the goals 'game. The third is that the digital game is not only emphasizing for the enjoyments of the learning, but also it is proper to enhance students' English proficiency. The fourth is that the digital game must be enhancing the students' affective factors. It is not containing violence. The fifth is that it is suitable to be collaborated with the English skills. The example of lesson plan below is for exploring the digital game and writing skill.

Pedagogical impacts and the implementation of the video game for the reading context have ever been explored by some study and have the fruitful benefits (Reinders & Wattana, 2014; Sundqvist, 2013). Reinders & Wattana (2014) investigated the student who gained the experiences in the game-based language learning program at the university in Thailand. They highlighted that the game-based language learning decreases learners' barriers in the learning of the language and assists them to increase their willingness to communicate. Sundqvist (2013) also analyzed the impacts of digital game to vocabulary acquisitions. He categorized the digital game namely single player, multiplayer and massively multiplayer online games. He validated that the digital game had positive impacts to learners' vocabulary acquisitions.

Vocabulary acquisition is as the evidence on how learners comprehend the words spoken, the words of written, grammatical forms, collocations, functions and meaning. The vocabulary acquisitions are not simple process, it is long life learning process with the different rank of each learner in terms of their acquisitions (Schmitt, 2000). The implication is that each learner has to maintain their own strategies to acquire new vocabulary in their learning. Hence the learning of vocabulary as parts of reading skill in EFL should be done in any media including digital game. Therefore, its process assists learners to improve their reading

comprehensions. This is in line with Green et al in 2011, the video game improves learner main language skills. Rogers & Johnson (2016) examined learners of English who played the virtual game. They measured whether the game affected their L2 acquisitions or not. They found that most participants enjoyed playing game and helped to acquire new vocabulary. Da Silva (2014) argued that current video games can trait the abilities in social context and not just playing tool. He also pointed out that digital game enhances the social abilities, not just the playing tool. The virtual game, furthermore, builds up communicative competence (Rama et al, 2012) and intercultural competence (Guillén-Nieto & Aleson-Carbonell, 2012). When the player plays the digital game, they have to read the instructions within the games. This is beneficial to raise their vocabulary capabilities.

3.3 *The Dilemmas toward the Utilization of Digital Game for the Learning of Reading*

The spreading of the digital game is equal with the development of technology. In the education field, the use of digital games has been excessively examined (Antzaka et al., 2017; Clark, Tanner-Smith, & May, 2014; Sundqvist, 2013). Most report that it has a lot of benefits in terms of social life, cognitive, motivational and emotional. For cognitive benefits, the digital game shows a faster and higher visual resolution (Green & Bavelier, 2012). Another utilitarian of digital game is to enhance vocabulary acquisition of students who was conducted by Rogers and Johnson in 2016. They underlined that the digital game helps students to learn English words. Chen & Yang (2013) conducted the study for 60 EFL students to measure the students' perceptions towards the digital adventure games. They proved that the students acquire new words easily through that game. However, there were no any significant improvements after treating through that game. Reinders (2017) asserted that the digital game improves reading comprehension skill. Gamers tend to have higher ability to elicit the relevant information efficiently by eliminating and filtering the sentences within the instructions (Bavelier et al, 2012). This enables students to perform reading techniques such as skimming and scanning technique. The role of digital game leads students also to learn a problem – solving (Adachi & Willoughby, 2013; Prensky, 2012).

The social benefit of the digital game is the interactions among gamers. They have to communicate in order to finish certain mission within the digital game. They also to review, accept, and reject some game roles. Those communications among gamers rehearse their social skill which proposes as social behavior (Gentile et al, 2009). It is possibly occurred when the game content is designed as the cooperation, collaborations, and supporting behaviorist (Ewoldsen et al, 2012). The communications among learners during the playing of the game lead to their real-life social interaction with their peers, their family, neighbors and others. Ewoldsen et al (2012) reported that playing certain digital game cooperatively which was compared with competitively increase learners to be cooperative and prosocial behavior in their real life. It decreases their aggressive cognitive side (Schmierbach, 2010). This allows students to think comprehensively without any fears of faults. It is needed to solve each mission within the game after reading its instructions.

Motivational benefit for the digital game during the learning reading is to engage learners actively. Reeve (2012) defined the engagements in learning as highly participations, attentiveness, and enthusiasm of learner's involvements in order to achieve the learning goals. Goehle (2013) also pointed out that the digital game not only sets good learning environments learners, but also it is more engagement among student to be involved during the learning. This also is in line with the study from Lee and Hammer (2011). They proved that the digital game can be as stimulations tool since it triggers positively on mental and social conditions. Hence, game-based learning accelerates higher level motivation of learners.

Emotional benefit for playing the digital game during the learning reading relate to each learner mental. Performing the digital game improves mood, enhances positive emotions, evokes relax feeling, and decreases anxiety (Russoniello et al., 2009; Ryan, Rigby, & Przybylski, 2006). In the daily learning activity, which concerns more on the learning materials without inserting some fun media (i.e. the digital game), students face boredoms whose affect to their learning achievements. In the same point with McGonigal (2011), he also argued that the video game triggers positive emotions. With the high control of learning in daily life elicits less self-awareness control (Sherry, 2004). Therefore, emotional perspective in the learning of reading through the digital game also has to be considered carefully. It is because self-emotion regulations relate to the learning goals, less negative emotions result to fewer negative effects, to lower anxiety, and to more social support (Aldao, Nolen-Hoeksema, & Schweizer, 2010). In Sum, those are positive impacts of the digital game for reading skill. (1) It contains of some stages to finish the missions. (2) The instructions within the game are useful to develop students' reading comprehensions. (3) It treats students punctiliously in finishing the game. (4) It develops their interactions or social ability. (5) The game will encourage students be autonomous.

Although the digital game has many strengths, it also gains negative impacts for learning. Adriani et al (2011) mentioned that the spreading of online game widely is common rather than offline game today. Thus, it is easily to gamers to obtain lot of information which probably is not filtered yet. They hoped that gamers wisely use it. Students who play the digital game also have to consider the duration of the playing digital game. Suryanto (2015) revealed that mostly student tend to spend 4 – 6 hours in day to play the digital game. It triggers addictions for students to spend more time to the game without doing others duties. Another side effect of the digital game is behavior changing. It means that the activities within the game can influence the gamers' characters in the real life. Piliang (2011) pointed out that children who play online game have alterations in their behaviors. Amriani et al (2014) analyzed the impact of gamification environments by identifying students' interactions. They proved that eliminating gamification decreases students' participation in the learning, meanwhile by adding gamification, it has no significant impacts. This is probably caused by different participants' characteristics, technical and learning materials issues. Fazamin et al (2015) pointed out that students tend to perform positive intentions and motivations during the playing the digital game. However, it potentially triggers students' addictions to play more the digital game. Bernik et al (2017) found that the digital game enhances educational effectiveness for online course. Yet, it is questionable if it is applied for long period in the online course. Another study is by Strmečk et al (2015) who investigated 55 students game for e learning. They proved the good achievements. Yet, it is still questionable noteworthy whether the game brings negative effects to gamers' characteristics or not. Urh et al (2015) also mentioned the integrations of digital game and e-learning for learners. They claimed positive impacts on it. However, that integration has to be recomposing to fit each learner personally.

The negative effects of the digital game potentially effect on the real life. Eskasasnanda (2017) identified the negative impacts of online game. First, the online game as part of the digital game is designed to challenge some mission. It affects gamers to be addictive to play in order to finish the missions of the game. Second, Lot of spending time for playing online game hallucinate gamers in their sleep in moving their finger unconsciously like holding mouse and keyboards. Third, addictive playing online game declines their study achievements. Students tend to focus in their own game world with less attention for their study progress. Fourth, much time for playing online game affects physically exhausted. They easily feel dizzy, back pain and sleepy. Due to many previous studies, these can be sorted that the digital game has negative effects briefly in the pedagogical and psychological. In the psychological sides, the digital game potentially emerges less attention, individualistic, laziness, hallucinations and addictions. Meanwhile in the pedagogical perspective, it causes the declining of the study progress, be less communications, less collaboration, less support, and less problem solving. To depict clearly those positive and negative impacts of the digital game for reading, the table below presents it.

Table 1. Positive and Negative impacts of the digital game

Positive		Negative	
psychological	pedagogical	psychological	pedagogical
Students be more Interactive (Reeve, 2012)	Improve reading comprehension (Reinders, 2017)	Laziness (Eskasasnanda, 2017)	Lower learning achievement (Eskasasnanda, 2017)
Collaborative (Ewoldsen et al, 2012)	Improve reading technique (Bavelier et al, 2012)	Hallucination (Eskasasnanda, 2017)	Free information (Adriani et al, 2011)
More focus (Russoniello et al., 2009)	Higher vocabulary acquisition (Rogers & Johnson in 2016).	Addiction (Fazamin et al, 2015)	More focus on the game missions (Eskasasnanda, 2017)
Confidents (Ryan, Rigby, & Przybylski, 2006)	Reading ability fluently (Prado, Dubois, & Valdois, 2007)	Individualistic (Amriani et al, 2014)	Bad alterations learning progress (Eskasasnanda, 2017)
Enhance social ability (Ewoldsen et al, 2012)	Problem solving (Adachi & Willoughby, 2013)	Talk less (Amriani et al, 2014)	Less time managements (Eskasasnanda, 2017)

In sum, those positives and negatives impacts of the digital game for reading skill are equals. Those cannot be concluded that the digital game is better than conventional technique. It depends on some several factors of participants in terms of participants' characteristic, technical existences, learning material, and learning goals. Therefore, it requires further research to fabricate that designs among learner's characteristic, rules, curriculum materials, game developers, and educators to achieve better goals in the future.

4. Conclusion

The spreading of technology widely is so fast. It influences education field including the utilization of the digital game for learning reading. However, it is still questionable if it is implemented for long course periods. Therefore, the writer regulates some factors and strategic reviews as the bases for integrating the digital game and reading skill. It contains digital game values (the digital game content, the engagement between learners and games instructions, time consuming and problem solving), digital game patterns (logic game missions, certain rules, interesting game characters, score, clear game instructions, and game objectives), and reading components (comprehension, vocabulary, fluency, phonic, and phonemic). Those three factors connect each other which mean that each affects the processes and the objectives of the learning of the reading through the digital game. The pedagogical perspectives for the digital game in learning a reading also are discussed. It restricts on how the pedagogy is inserted into the game instructions, teachers' roles and students'/gamers roles. Those are to guide the students when they play the game also in the learning atmosphere. Thus, it is not only playing the digital game, but also how learn well the reading skill within. The views of positive and negative sides of learning reading through the digital game are existed. Due to some previous study, the digital game has positive and negative impacts which can be dissevered into three categories namely psychological and pedagogical views. Psychological positives impact such as more Interactive, collaborative, more focus, confident, and higher social ability. Meanwhile, Psychological negative effects are as laziness, hallucination, addiction, individualistic, and talk less. Pedagogical bad effects can be lower learning achievement, free information, more focus on the game missions, bad alterations learning progress, and less time managements. Therefore, it cannot be sorted that the digital game is proper media for the long-life learning of reading or not and better than conventional media or vice - versa. Both have their own strength and weaknesses. These involve complex motives in terms of participants' characteristic, teacher mastery in technology, technical existence, learning materials and the learning objectives. Furthermore, it is needed further discussion among educators, game developer and expert researchers to design appropriate the digital game and curriculum within.

References

- Adachi, P. J., & Willoughby, T. (2013). More than just fun and games: The longitudinal relationships between strategic video games, self-reported problem-solving skills, and academic grades. *Journal of Youth and Adolescence*, 42(7), 1041–1052. <http://doi.org/10.1007/s10964-013-9913-9>
- Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical Psychology Review*, 30(2), 217–237. <http://doi.org/10.1016/j.cpr.2009.11.004>
- Al-jifri, A. A., & Elyas, T. (2017). The impact of video games in the acquisition of English language: The case of Saudi youths. *Journal of Foreign Language Education and Technology*, 2(2), 15-35. <http://jfflet.com/jfflet/index.php/jfflet/article/view/46/141>
- Angraeni, L., Chuzaimah., Nasir, F. (2019). Investigating efl students' perception of english vocabulary acquisition through online gaming. *ELT Worldwide*, 6(2), 162-170. <https://doi.org/10.26858/eltww.v6i2.13328>
- Alsayegh, A. A. (2016). *Teaching English vocabulary via digital games to 3rd level Saudi male students: Issues and attitudes* [Unpublished doctoral dissertation], University of Limerick. <https://core.ac.uk/download/pdf/160745142.pdf>
- Amriani, A., Aji, A. F., Utomo, A. Y., & Junus, K. M. (2014). An empirical study of gamification impact on E-learning environment. *Proceedings of 2013 3rd International Conference on Computer Science and Network Technology*. Dalian: IEEE. <https://doi.org/10.1109/ICCSNT.2013.6967110>
- Adriani., Inge., Sulistiyawati, Febrina, N., Puruhita, Rora, D., FX, L. Yoseptian., nauli, Tarida, M. (2011). *Gambaran Kecenderungan Agresivitas Dalam Pemilihan Game Online Pada Anak*. *Proceeding PESAT (Psikologi, Ekonomi, Sastra, Arsitektur & Sipil)*, 4. pp. 1-6. ISSN 1858-2559 <http://repository.gunadarma.ac.id/id/eprint/428>
- Antzaka, A., Lallier, M., Meyer, S., Diard, J., Carreiras, M., & Valdois, S. (2017). Enhancing reading performance through action video games: the role of visual attention span. *Scientific report*, 7(1), 1-9. <http://doi.org/10.1038/s41598-017-15119-9>
- Bates, T. (2011). Understanding Web 2.0 and its implications for e-learning. *InWeb*, 2, 21-41. <http://doi.org/10.4018/978-1-60566-294-7>

- Bavelier, D., Achtman, R. L., Mani, M., & Föcker, J. (2012). Neural bases of selective attention in action video game players. *Vision Research*, 61, 132–143. <http://doi.org/10.1016/j.visres.2011.08.007>
- Bavelier, D., Green, C. S., Pouget, A. & Schrater, P. (2012). Brain plasticity through the life span: Learning to learn and action video games. *Annual Review of Neuroscience*, 35(1), 391-416. <http://doi.org/10.1146/annurev-neuro-060909-152832>
- Bernik, A., Radošević, D., & Bubaš, G. (2017). Introducing gamification into E-learning university courses. *MIPRO, Proceedings of the International Convention*. Opatija: IEEE.
- Bosse, M. L. & Valdois, S. (2009). Influence of the visual attention span on child reading performance: a cross-sectional study. *Journal of Research in Reading*, 32 (2), 230-253. <http://doi.org/10.1111/j.1467-9817.2008.01387.x>
- Chen, H.J.H. & Yang, T.Y.C. (2013). The Impact of *Adventure Video Games* on Foreign Language Learning and the Perceptions of Learners. *Interactive Learning Environments*, 21(2):1-13. <http://doi.org/10.1080/10494820.2012.705851>
- Clark, D. B., Tanner-Smith, E. E., & May, S. K. (2014). *Digital Games for Learning: A Systematic Review and Meta-Analysis*. SRI Publication, Technical Report.
- Cornillie, F., Thorne, S. L., & Desmet, P. (2012). Digital games for language learning: challenges and opportunities: Editorial digital games for language learning: From hype to insight?. *ReCALL*, 24(3), 243-256. <https://doi.org/10.1017/S0958344012000134>
- De Silva, R. L. (2014). Video games as opportunity for informal English language learning: Theoretical considerations. *ESpecialist*, 35(2), 155-169. <https://revistas.pucsp.br/index.php/esp/article/view/21465>
- Dörnyei, Z., & Ushioda, E. (2011). *Teaching and Researching Motivation* (2nd ed.). Harlow: Pearson Education.
- Eskasasnanda, I.D.P. (2017). Causes and effects of online video game playing among junior-senior high school students in malang east java. *Komunitas: International Journal of Indonesian Society and Culture*, 9(2), 191-202. <http://doi.org/10.15294/komunitas.v9i2.9565>
- Ewoldsen, D. R., Eno, C. A., Okdie, B. M., Velez, J. A., Guadagno, R. E., & DeCoster, J. (2012). Effect of playing violent video games cooperatively or competitively on subsequent cooperative behavior. *Cyberpsychology, Behavior, and Social Networking*, 15(5), 277–280. <http://doi.org/10.1089/cyber.2011.0308>
- Fazamin, A., Ali, N. H., Saman, Y., & Yusoff, M. H. (2015). Influence of Gamification on Students' Motivation in using E-learning Applications Based on the Motivational Design Model. *International Journal of Emerging Technologies in Learning (iJET)*, 10(2),30-34. <http://doi.org/10.3991/ijet.v10i2.4355>
- Gentile, D. A. (2009). Pathological video-game use among youth ages 8–18: A national study. *Psychological Science*, 20(5), 594–602. <http://doi.org/10.1111/j.1467-9280.2009.02340.x>
- Gentile, D. A., Anderson, C. A., Yukawa, S., Ihori, N., Saleem, M., Ming, L. K., . . . Sakamoto, A. (2009). The effects of prosocial video games on prosocial behaviors: International evidence from correlational, longitudinal, and experimental studies. *Personality and Social Psychology Bulletin*, 35(6), 752–763. <http://doi.org/10.1177/0146167209333045>
- Goehle, G. (2013). Gamification and web-based homework. *PRIMUS: Problems, Resources, and Issues in Mathematics Undergraduate Studies*, 23(3), 234-246. <http://doi.org/10.1080/10511970.2012.736451>
- George, M. W. (2008). *The elements of library research: What every student needs to know*. Princeton University Press.
- Green, C. S., & Bavelier, D. (2012). Learning, attentional control, and action video games. *Current Biology*, 22(6), 197–206. <http://doi.org/10.1016/j.cub.2012.02.012>
- Green, P. J., Sha, M., & Liu, L. (2011). The U.S.-China e-language project: A study of a gaming approach to English language learning for middle school students. <http://files.eric.ed.gov/fulltext/ED521516.pdf>
- Guillén-Nieto, V., & Aleson-Carbonell, M. (2012). Serious games and learning effectiveness: The case of it's a deal! *Computers & Education*, 58(1), 435-448. <https://doi.org/10.1016/j.compedu.2011.07.015>
- Hainey T., Connolly T., Stansfield M. & Boyle E.A. (2011). Evaluation of a game to teach requirements collection and analysis in software engineering at tertiary education level. *Computers & Education*, 56(1), 21-35. <http://doi.org/10.1016/j.compedu.2010.09.008>
- Hakulinen, L., Auvinen, T., & Korhonen, A. (2015). The effect of achievement badges on students' behavior: An empirical study in a university-level computer science course. *International Journal of Emerging Technologies in Learning*, 10(1), 18-28. <http://doi.org/10.3991/ijet.v10i1.4221>
- Hung, W., & Eck, R.N.V. (2010). Aligning Problem Solving and Gameplay: A Model for Future Research and Design. R. Van Eck (Ed.), *Interdisciplinary Models and Tools for Serious Games: Emerging Concepts*

- and Future Directions, IGI Global, Hershey (2010), pp. 227-263. <http://doi.org/10.4018/978-1-61520-719-0.ch010>
- Howard Hao-Jan Chen and Christine Ting-Yu Yang, *the Impact of Adventure Video Games on Foreign Language Learning and the Perceptions of Learners*, (Philadelphia: Taylor & Francis Ltd., 2013)
- Hwang, G.-J., & Wu, P.-H. (2012). Advancements and trends in digital game-based learning research: A review of publications in selected journals from 2001 to 2010. *British Journal of Educational Technology*, 43(1), 6-10. <http://doi.org/10.1111/j.1467-8535.2011.01242.x>
- Leaning, M. (2015). A study of the use of games and gamification to enhance student engagement, experience and achievement on a theory-based course of an undergraduate media degree. *Journal of Media Practice*, 16(2), 155-170. <http://doi.org/10.1080/14682753.2015.1041807>
- Lee, J. J., & Hammer, J. (2011). Gamification in education: what, how, why bother? Definitions and uses. *Exchange Organizational Behavior Teaching Journal*, 15(2), 1-5. <https://www.uwstout.edu/soe/profdev/resources/upload/Lee-Hammer-AEQ-2011.pdf>
- Livingstone, D., & Hollins, P. (2010). Virtual worlds, standards and interoperability. *International Journal of IT Standards and Standardization Research (IJITSR)*, 8(2), 45-59. <http://doi.org/10.4018/jitsr.2010070104>
- McGonigal, J. (2011). *Reality is broken: Why games make us better and how they can change the world*. New York, NY: Penguin Press.
- Ningtyas, A. (2016). *The effect of video game towards students' reading comprehension on narrative text* (Thesis, Universitas Negeri Jakarta, Indonesia). <https://www.repository.uinjkt.ac.id/dspace/bitstream/123456789/33626/1/skripsi%20Watermark.pdf>
- Piliang, Y., A. (2011). *Dunia yang dilipat: Tamasya melampaui batas batas kebudayaan (The folded world: Journey beyond cultural borders)*. Matahari
- Prado, C., Dubois, M. & Valdois, S. The eye movements of dyslexic children during reading and visual search: impact of the visual attention span. *Vision Research*, 47(19), 2521-2530. <http://doi.org/10.1016/j.visres.2007.06.001>
- Prensky, M. (2010). *Teaching digital natives: Partnering for real learning*. Corwin Press.
- Prensky, M. (2012). *From digital natives to digital wisdom: Hopeful essays for 21st century learning*. Corwin Press.
- Rama, P. S., Black, R. W., van Es, E., & Warschauer, M. (2012). Affordances for second language learning in World of Warcraft. *ReCALL*, 24(3), 322-338. <https://doi.org/10.1017/S0958344012000171>
- Reeve, J. (2012). A self-determination theory perspective on student engagement. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of Research on Student Engagement* (pp. 149-172). New York: Springer
- Reinders, H. (2017). Digital games and second language learning. In S. Thorne & S. May (Eds.) *Language, Education and Technology. Encyclopedia of Language and Education* (3rd ed.). Springer. https://doi.org/10.1007/978-3-319-02237-6_26
- Reinders, H., & Wattana, S. (2014). Can I say something? The effects of digital gameplay on willingness to communicate. *Language Learning & Technology*, 18(2), 101-123. <http://dx.doi.org/10.125/44372>
- Rogers, S. & Johnson, B. (2016). Saudi ELLs' Digital Gameplay Habits and Effects on SLA: A Case Study. In G. Chamblee & L. Langub (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference* (pp. 599-604). Savannah, GA, United States: Association for the Advancement of Computing in Education (AACE). <https://www.learntechlib.org/primary/p/171739/>
- Ronimus, M., Eklund, K., Pesu, L., & Heikki Lyytinen. (2019). Supporting struggling readers with digital game-based learning. *Education Tech Research Dev* (2019) 67, 639-663. <https://doi.org/10.1007/s11423-019-09658-3>
- Ronimus, M., Kujala, J., Tolvanen, A., Lyytinen, H. (2014). Children's engagement during digital game-based learning of reading: The effects of time, rewards, and challenge. *Computers & Education* 71 (2014) 237-246. <http://dx.doi.org/10.1016/j.compedu.2013.10.008>
- Russoniello, C. V., O'Brien, K., & Parks, J. M. (2009). EEG, HRV and psychological correlates while playing Bejeweled II: A randomized controlled study. In B. K. Wiederhold & G. Riva (Eds.), *Annual review of cybertherapy and telemedicine 2009: Advance technologies in the behavioral, social and neurosciences* (Vol. 7, pp. 189-192). Amsterdam, The Netherlands: Interactive Media Institute and IOS Press. <http://doi.org/10.3233/978-1-60750-017-9-189>

- Ryan, R. M., Rigby, C. S., & Przybylski, A. (2006). The motivational pull of video games: A self-determination theory approach. *Motivation and Emotion*, 30(4), 347–363. <https://doi.org/10.1007/s11031-006-9051-8>
- Sari, D.A. (2017). *The Use of Gamebook as Digital Media to Enhance Students' Reading Comprehension in Narrative Text (A Quasi Experimental Study of the Eighth Grade Students of SMP Negeri 1 Wangon in the Academic Year of 2016/2017)*. Final Project. English Department, Faculty of Languages and Arts, Semarang State University. <http://lib.unnes.ac.id/30538/1/2201413022.pdf>
- Schmierbach, M. (2010). “Killing spree”: Exploring the connection between competitive game play and aggressive cognition. *Communication Research*, 37(2), 256–274. <http://doi.org/10.1177/0093650209356394>
- Schmitt, N. (2000). *Vocabulary in language teaching*. Cambridge University Press.
- Shahriarpour, N., & Kafi, Z. (2014). On the effect of playing digital games on Iranian intermediate RFL learners' motivation toward learning English vocabularies. *Procedia - Social and Behavioral Sciences*, 98 (2014), 1738 – 1743. <https://doi.org/10.1016/j.sbspro.2014.03.601>
- Sherry, J. L. (2004). Flow and media enjoyment. *Communication Theory*, 14(4), 328–347. <http://doi.org/10.1111/j.1468-2885.2004.tb00318.x>
- Sugiyono. (2012). *Metode penelitian kuantitatif kualitatif dan R&B*. Alfabeta
- Sundqvist, P. (2013, September, 11-14). *Categorization of digital games in English language learning studies: Introducing the SSI model* [ED565056]. Paper presented at the 2013 EUROCALL Conference, Évora, Portugal. <http://files.eric.ed.gov/fulltext/ED565056.pdf>
- Suryanto, R. N. (2015). Dampak Positif dan Negatif Permainan Game Online di Kalangan Pelajar. *Jom FISIP*, 2(2). 1-15. <https://jom.unri.ac.id/index.php/JOMFSIP/article/download/6826/6515>
- Urh, M., Vukovic, G., Jereb, E., & Pintar, R. (2015). The Model for Introduction of Gamification into E-learning in Higher Education. *Procedia - Social and Behavioral Sciences*, 197(2015), 388-397. <http://doi.org/10.1016/j.sbspro.2015.07.154>
- Van Staalduinen, J. P., & de Freitas, S. (2011). A game-based learning framework: Linking game design and learning. In MS.Khine (Ed.), *Learning to Play: Exploring the Future of Education with Video Games* (pp. 29-54). Peter Lang.