The Influence Of Modern Video Games On Children's Second Language Acquisition

Mohamad Ali Ahsan Mohd Ali Atma, Mohd Nazri Latiff Azmi, Isyaku Hassan

Abstract: This study investigates the influence of modern video games on children's Second Language Acquisition (SLA). The study employs a qualitative, case study approach. The data were obtained through observations from a 7-year-old child selected via purposive sampling. The data were analyzed through a deductive thematic approach and discussed using Schema Theory to evaluate the participant's usage of the English language learned from video games. By analyzing and understanding this phenomenon, the researchers are inclined to understand how modern video games enable children to absorb knowledge and acquire a second language faster than other methods. We hypothesize that the acquisition of a second language is caused by the Critical Period Hypothesis (CPH) through the facilitation of communication and context between the player and the video games. This research aspires to provide more insights into the prospect of video games as a tool for language acquisition.

Index Terms: Children, Comprehension, Critical Period Hypothesis, language acquisition, Malaysia, Schema theory, video games.

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1. INTRODUCTION

Advances in technology influence how and where language learning takes place. Nowadays, a language could be acquired in a very engaging manner through digital game-based learning (Pereira, 2018). Video games have always been part of the familiar terms in the twenty-first century and are recognized as an effective tool for learning (Reinders, 2011; Hitosugi, Schmidt, & Hayashi, 2014; Ke, 2016; Liu, Holden, & Zheng, 2016). English became a lingua franca and covered several fundamental aspects such as business, diplomacy, and technology. Postic (2015) explained that in the past decade, there has been an obvious increase in children's English proficiency. This change could be attributed to the influence of media and more specifically video games. As time progresses, video games became more than just as a tool for entertainment and elevated into a cultural symbol. Some video games are more advanced than movies or books in terms of the capacity in conveying a story. Video games are prospective sources of second language input, but there is inadequate research on their effectiveness in children's language acquisition. Effective L2 learning through video games "is more likely to occur if practical conclusions can be drawn from empirical evidence" (DeHaan, Reed, & Kuwanda, 2010, p. 74). It is not alien to think that video games could impact children more than any type of medium. Vanhove (2013) asserts that this occurrence could be due to the critical period before the age of 13. This results in children having more capacity to learn and absorb the knowledge from their surroundings. Several previous studies on video games with practical and pedagogical implication were conducted (e.g. DeHaan et al., 2010; Hitosugi et al., 2014; AlShaiji, 2015; Ke, 2016; Liu, Holden, & Zheng, 2016; Roach, 2017) but very few of them (e.g. AlShaiji, 2015) focused on how modern video games influence children's second language acquisition. As such, this research investigates the relationship between video games and second language acquisition in children, particularly in the Malaysian context. Specifically, this research

aims to determine the influences of video games on Second Language Acquisition (SLA) and evaluate the processes during the acquisition, as well as the challenges of SLA.

2 LITERATURE REVIEW

2.1 Influence of Video Games on Language Acquisition

Video games were not the first option for acquiring a language, "since the very first video games were made out of old radar equipment designed to simulate a game of table tennis" (Postic, 2015, p. 2-3). Until the mid-1980s, video games were nothing more than moving images with barely any depth to the gameplay other than being a reflex test. They could not contain any narrative because of the lack of attractive graphics and a plot. Gradually, video games had evolved to a point where they were considered an interactive movie designed for passive and, later increasingly, for active language interaction. According to Doring (2002), children build confidence in using the language in a "low-affective" atmosphere for learning. Video games fully engage the attention of learners. They create a non-threatening atmosphere in presenting information and encourage thinking and communication skills (Prez, & Guzmn-Duque, 2014). Therefore, learning a foreign language while playing video games "was very effective because it was highly motivating due to its entertainment value, and there was no pressure or evaluation methods that could deter players from openly engaging in using the language" (Postic, 2015, p. 3-4). Video games have been successfully used as language learning instruments and proved useful in second language acquisition (Dehaan, 2008; Singaravelu, 2008; DeHaan et al., 2010; Sylvén & Sundqvist, 2012; Ke, 2016; Liu, Holden, & Zheng, 2016; Roach, 2017). DeHaan et al. (2010) found that video game players were able to relatively recall vocabulary after gameplays. Besides, Hitosugi et al., 2014) reported a positive impact of video games on learners' vocabulary development. According to the study, vocabulary development through video games is more effective than using textbooks. Singaravelu (2008) also found that learning of learning English grammar through video games could be more effective than conventional methods. Video games "provide L2 English learners with a linguistically rich and cognitively challenging virtual environment that may be conducive to L2 learning, as learners get ample opportunities for L2 input and scaffolded interaction" (Sylvén & Sundqvist, 2012, p. 302). Furthermore,

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Sylvén and Sundqvist (2012) found that frequent gamers (≥ 5 hours/week) outperformed moderate gamers who, in turn, outperformed non-gamers in L2 learning, signifying that digital gameplays at an early age is of great importance for L2 acquisition. Roach (2017) also noted that video games provide learners with the opportunity to practice their communicative language skills in their target language. According to Soyoof and Jokar (2014), video games "embrace a host of traits that are thoroughly in tandem with language learning namely, role-playing, intrinsic and extrinsic motivation, automaticity, self-confidence, authenticity, anticipation of reward" (p. 1857). However, according to DeHaan et al. (2010), "investigating the relationship between video games and language acquisition is problematic because of the ever-increasing variations of the media" (p. 74).

2.2 Critical Period Hypothesis

The Critical Period Hypothesis (CPH) was initially developed in neurolinguistic research by Penfield and Roberts (1959). Subsequently, Lenneberg (1967) argued strongly that maturational parts of the brain that restrict retrieval from brain disorders could extend to L2 acquisition. Afterward, the critical period has become "a popular way of explaining the reason for the apparent success of children and failure of adults in learning a second language" (Hakuta, Bialystok, & Wiley, 2003, p. 37). A critical period for language acquisition is often defined as "a sharp decline in learning outcomes with age" (Chiswick & Miller, 2008, p. 16). The critical period begins from five years until 15 years of age. According to Chiswick and Miller (2008), "at ages below the critical period language learning can lead to native-like proficiency, or language acquisition can occur simply through exposure rather than through tutoring, or language skill acquisition is simply easier" (p. 16). Vanhove (2013) explained that in the long term and through immersive delving, second-language learners (L2 learners) who start acquiring a language early in life and continue to be exposed to the language and its input will indubitably outperform later learners. The CPH for SLA presumes that the "susceptibility" or "sensitivity" toward language input varies according to age, with adult L2 learners being less susceptible to input than child L2 learners (Vanhove, 2013, p. 1-2).

2.3 Schema Theory

The Schema Theory explains how people extract and synthesize new information. According to Robert (2011), Schema is defined as "pre-existing assumption about how the world works" (p. 16). People learn new information every day in their lives, and at most occurrences, they adapt the information in their past to fit in with the current information they have obtained. To gain balance, "if one cannot fit the new information and patterns, something has to be removed" (Robert, 2011, p. 1-2). Humans create memories through their experiences and adapt knowledge for future use (Al-Jarrah & Ismail, 2018a). Schema simply refers to the association of cognitive structures suggesting learners' awareness of daily activities (Brown, 2001; Harmer, 2001; Nassaji, 2002; (Al-Jarrah & Ismail, 2018b). According to Gilakjani and Ahmadi (2011), Schema influence the learner's familiarity with information and its storage in their memory. Schema theory centers around how meaning is created from prior knowledge. This previously obtained knowledge is known as "background knowledge" while its structure is called "schemata" (Nassaji,

2002). To comprehend information, learners need to connect the information with their background knowledge. In the comprehension process, the knowledge structure works efficiently alongside the prior knowledge in the learner's mental structure (Zhao & Zhu, 2012).

3 METHODOLOGY

In this research, a 7-year-old female child named Khairatul Erina was observed. Erina attends a primary school called Sekolah Rendah Kebangsaan Pulai Indah in Malaysia. The data were gathered through observation. The observation was conducted on five sequential days. This procedure was followed to ensure that adequate time is allocated to observe the subject. The researchers bought a new video game that consisted of intermediate and advanced levels of the English language. This process was done to introduce a new range of vocabulary and terms for the subject. The observation started during the subject's video gaming session in the evening and an hour after dinner. To incite communication, the researchers joined in on the gaming session. The focus of the observation was to investigate the factors that influence the subject's second language acquisition. Next, the observation focused on the process in which language acquisition occurs. Lastly, the observation focused on the challenges during language acquisition.

3.1 Research Instrument

For this research, the language was thought to be bordering between intermediate and advanced levels in the video games to test the subject on levels above her potential to observe her progress. The video game was named Final Fantasy, a signature product from Sony Entertainment developed by Square Enix in 2017. The video game incorporated different elements such as visual, auditory, language, and interactivity. The primary reason for using the said video game was to observe the subject's ability to observe and adapt to the game through a steep learning curve while acquiring the language. The reason had nothing to do with language mastery or completing the game but rather observing and understanding how the subject could acquire and understand vocabularies at her age period. Other instruments used include a notebook to record emerging vocabularies and the subject's gradual changes as she adapted to the video game.

4 RESULTS

After observing Erina for five days, the researchers categorized the results into three major themes, namely: factors influencing SLA, processes during SLA, and challenges of SLA. These themes are elaborated in the following sections.

4.1 Children's Language Acquisition

The first objective of this research was to determine the influences of video games on children's L2 acquisition. As presumed by CPH, the early period of language acquisition plays an important role in L2 learning. From Vanhove's (2013) explanation, second-language learners who started language acquisition early in life will certainly outperform later learners. During the observation, Erina had shown remarkable progress in acquiring several new vocabularies (refer to Table 1) and was able to spell the words correctly with guidance. Besides, Erina was able to roughly understand the instructions in the game which did not hinder her progression, a feat rarely seen

in some children. This result shows that Erina can adapt and acquire language much faster at an early age.

Furthermore, Erina has demonstrated a certain degree of comprehension following the video game's instruction. Occasionally, Erina asked the researchers on riddles and more advanced sentences to understand and progress through the game. After five days, Erina had shown tremendous improvement in comprehending the instructions while simultaneously acquiring new vocabularies. She opted to answer the riddles to the best of her abilities and managed to be successful in solving some of the puzzles. According to Da Silva (2014), interactivity and communication became a secondary element in influencing language acquisition. Facilitation of communication is crucial in improving the proficiency of second language users through video games (Reinders, 2011; Prez et al., 2014). Video games were designed to challenge the players through intricate lore or game systems. This encouraged the player to communicate with other people to find a way through the game, thus facilitating language usage. Another prime example is teamwork-based communication. During the moments where the researchers joined the gaming session, several of the game stages required cooperation between the players. Communication was crucial to ensure progression within the gaming session. Therefore, video game influences Erina's L2 acquisition through vocabulary development, interactivity, as

TABLE 1
LIST OF VOCABULARIES ACQUIRED

Vocabularies Acquired	
Dash	Attack
Magic	Flee
Warp	Catalyst
Mix	Item

well as facilitation of communication.

4.2 Processes Involved in L2 Acquisition
The second objective of this research was to identify the processes of L2 acquisition in video games. It was observed that Erina learned new vocabularies through firstly imitating the sound, then repeating the words with initiative, and asking for the meanings of words. Table 2 indicates the meaning of the recorded vocabularies based on Erina's explanation.

During the observation, the researchers took account of the process of language acquisition. Every instance Erina heard a new word, she kept repeating the word multiple times as an instinct, ultimately recognizing the word in the process. However, she did not comprehend the literal meaning behind those words. In this regard, Lorena (2007) noted that one of the first incidents in language acquisition is through imitation. Natural imitation is a situation where children repeat utterances without request in a natural setting. Besides, after recognizing the new vocabularies, Erina's instinctive habit was to ask the researchers or her family members on the word meanings. Although there were varying degrees in which she truly understood the meaning, the majority of new vocabularies were comprehended without regard to grammar.

4.3 Challenges during L2 Acquisition
The second objective of this research was to explore the challenges of L2 acquisition in video games. Acquiring a new language is not without challenges (Ab Rashid, Mazlan,

Wahab, Anas, Ismail, Syed-Omar, & Anwar, 2016; Essa, Hassan, & Ramlee, 2020). Nowadays, video games pay little to no heed in censoring vulgar words or sexual innuendos. Although video games bolster a learner's proficiency, they are still considered a double-edged sword. In this context, as more vocabularies were acquired, Erina was susceptible to negative and unproductive remarks which can be categorized into vulgar words, lack of context, and informal discourse.

Vulgar Words and Lack of Context

TABLE 2
VOCABULARIES WITH RESPECTIVE MEANINGS

Vocabularies with Meaning	
Blast	Explode and push away
Enter	Go in
Preemptive (Pronounced prim-tiv)	I attack first
Ambushed (Pronounced em-besh)	They attack first
Attack	I hit them
Fly	Like what the birds do
Dive	Go down fast
Drive	Drive the car
Victory	I win
Defeat	I lose

Egenfeldt (2010) claimed that video games target more than one dimension of audiences. The majority of the world's leading video game companies created more content for the mature audience. As such, video games could be an effective way of learning new vocabularies but with detrimental effects. During the observation, Erina had uttered several vulgar words such as "Damn", "Shite", "Bastard" and "Screw it". The remarks elicited a swift punishment from her family members. As time progressed, Erina had learned of the implications of using vulgar words and avoided using such words. Erina used vulgar words because she thought that the words meant little to no hostility. As such, she thought that the vulgar words were equivalent to the Malay word bodoh which translates to "idiot". Another implication is that Erina lacked context in her speech. Due to her imitation of several sentences in the video game, she used the same utterance and this resulted in bizarre routine conversation. One of the most prominent examples was a sentence taken from the game "Son of a bitch". Normally, we would understand that the sentence meant hostility and downright vulgar. However, that was not the case for Erina as she took on the literal meaning behind the sentence. Simply put, she thought the words meant the offspring of a dog and bear no figurative meaning whatsoever. While it may be less troubling, continuous usage of the sentences may be disastrous on her social development. Fortunately, this incident was one of the less severe cases of these occurrences to warrant intervention.

Informal Usage of Language
Taken from "UTS HELPS: Higher Education language and presentation support" by Learning Lab (2013), an informal language is considered more spontaneous and casual than its formal counterpart. Normally, informal language is used to initiate a casual conversation with peers or anyone. While it may seem to be non-problematic at first, the results from the observation said otherwise. Table 3 lists out her informal sentences and formal iteration. Due to her acquisition of vocabularies and speech styles in the video game, Erina used

an informal style of language as opposed to the formal pragmatic language. Several informal sentences were prevalent in her speech or homework. For example, Erina said "I don't wanna do it" both in her speech and written texts. Although seemingly difficult, her informal usage of language can easily be remedied through correction by her teacher in the school.

5 DISCUSSION

According to Postic (2013), the idea of using modern video games as a means of language acquisition was too irregular. However, due to social influence, children were subjected to long periods of learning sessions in which they learn a language without the prospect of freedom (ie. interest, accessibility, and content). The mundane style of learning disturbs their lexical and comprehension skills. In turn, they would not be able to absorb as much information as they could. Thus, the researchers believe that using video games could eliminate these limitations because creating a "non-threatening" atmosphere, as expressed by Postic, could help the subject to learn without any restrictions. Erina explained that learning the classroom context was uninteresting to her as opposed to the interaction with television channels and video games. The subject even asked why she could not choose what she wanted to learn rather than being forced to learn based on the syllabus. In the researchers' opinion, the usage of video games was like a double-edged sword. Although the freedom of learning in the learner's own pace is preferable, video games have much variable content and, in such content, it is quite difficult to pinpoint the specific language skills for the learners. Based on the observation, Erina was subjected to simultaneous stimuli of reading, listening, and comprehension. While she was successful in adapting to the language skills through playing the video game, this could not be said for other learners. Since the early period of learning, as presumed by CPH, might influence how young learners acquire L2, the same could not be said for learners who have passed this period. Therefore, as interesting as the prospect was, acquiring a language through video games was a selective notion, and only those who could adapt would surely benefit from the gaming session. Furthermore, the Schema Theory postulates that human beings create episodic memory and work their knowledge through experience rather than formal sessions. This memory enables them to create an operant conditioning through instinct and helps them in long-term memory storage. Ultimately, these memories become a major factor in language acquisition. Through video games, Erina had much ease in assimilating knowledge and connected it to the real world. The game controls, rules, and gameplay all reflect a real-life setting which allowed her to make sense of the game. After the gaming session, the researchers found that Erina had been linking adjectives in the game with her family members. For example, the word "heavy" was pointed to her sister. Although the link was not accurate, she was able to bring out the words in the video game to her real-life surrounding. This top-down learning process was suitable for the preliminary part of learning before going to a more advanced stage in which she had to re-assimilate new learning and create new schemata based on her existing ones. However, care must be taken to avoid repeating the same words within the same context, as it would lead to fossilization. The learning process must also encourage discovery learning on the learner's part while consistent monitoring is required to ensure an effective learning process. According to Vanhove (2013), children perform better if they receive consistent input throughout the learning process. Since video games do not conform to the normal ways of language learning, they become a unique method. However, this observation could prove that children would acquire language and its vocabularies faster than any classroom sessions if they were subjected to a very interactive experience that challenges their limits and comprehension skills. Children could adapt to their surroundings or knowledge at an amazing pace and using video games may just be one of the approaches toward nurturing them. Overall, language is best acquired through experience compared to formal sessions. Moreover, the idea that children could absorb a second language better than later learners reinforces the fact that the early period plays a key role in children's intellectual development. Therefore, maximizing the critical period is imperative for the learner's language development. In research, providing Erina with the opportunity to discover the English language through video games was very fruitful as she acquired the English vocabulary and was able to use it outside of the gaming session. Continuous gaming sessions would theoretically yield better results. The plethora of video games in multiple genres enables variety in language learning. However, Erina must not be subjected fully to video games as it would lead toward obsession, burnout, and lack of interest in other types of media. Therefore, a balance is necessary for optimal language acquisition.

6 CONCLUSION

This research examined the influences of video games on children's language acquisition. The results show that video games could influence children's L2 acquisition through vocabulary development, interactivity, and communication. It was found that children learn by adapting their schema through imitation and trial-error. However, necessary measures must be taken when exposing children to new languages through video games due to the inevitable use of vulgar words and lack of formal discourse. Failure to take action would jeopardize the children's development in both cognitive and affective aspects. Though the results of this study cannot be generalized to other modern video games, game designers should be mindful of the use of vulgar language to avoid its negative influence on children. By stipulating the pedagogical implication of modern video games, this research could be valuable material for educationists and curriculum developers, particularly in second language learning. Hopefully, several practices using video games could be applied to facilitate children's language development.

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