EFL Learners' Beliefs Concerning the Effects of Accumulative Gaming Experiences on the Development of their Linguistic Competence

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Abstract

The present study investigates the beliefs that EFL learners had regarding the impact of their long-term exposure to gaming on the development of their English skills. Utilizing a mixed-methods design, data were collected using a survey questionnaire that comprised 18 items and semi-structured oral interviews from 101 Saudi undergraduate students majoring in English Language and Translation at a public university in Saudi Arabia. The quantitative results reveal that participants have generally had positive learning outcomes from their accumulative gaming experiences, although accumulative gaming is seen to have greater potential for the development of receptive skills rather than productive skills in the target language. In particular, video games appear to foster learning and practicing of particular language skills and subskills, namely listening, speaking, reading, vocabulary, and pronunciation more than others. The qualitative findings provide further evidence of positive learning experiences of EFL due to gaming: the acquisition of new words encountered in gaming using learning strategies such as translation, enjoyment of the game as a salient, inherent factor that is conducive to learning as opposed to game difficulty as a hindering factor; and the possibility for video games based on adventure stories to activate the English learning mode. Last but not least, some advantages and obstacles pertinent to learning through the environment of massively multiplayer online video games (MMOG) were identified by learners.

1 Introduction

1.1 Digital game-based language learning

Digital game-based language learning (DGBLL) has recently been receiving growing attention due to the potential of technology-enhanced language learning to provide effective resources and means for second language (L2) instruction. Increased awareness of the educational advantages of video games as promoting interaction in the learning process has clearly been identified in literature (Golonka, Bowles, Frank, Richardson, & Freynik, 2014). Several researchers have urged the adoption of video games in education to exploit the potential merits of electronic gaming in learning (see for example, Crookall, 2002; Gee, 2003, 2004). Rogers (2016) advocated the place of video games as an effective tool for language teaching and learning. Learning an L2 through gaming can be motivated by learning through entertainment, which is grounded in several theories, namely, the Interest Stimulation theory, the Arousal theory, and the Short-Term Gratification theory (Seels, Berry, Fullerton, & Horn, 1996). According to Marshall (2002), the aforesaid theories can help to explain how media that can pique learners' interest can also foster cognitive processing, improve the attention focus of individuals, and aid in internalizing content displayed by such exciting media.

The prevalence of video games and online gaming as an activity is an acknowledged phenomenon worldwide. Gaming is considered to be a regular activity for young people, and it is claimed that a large number of people among the younger generations will end up having played as many as 10.000 hours upon reaching the age of 21 (Prensky, 2003). In the Saudi context for example, and according to *newzoo.com* report of the 2018 global games market, games sales revenues in Saudi Arabia was ranked 22nd highest among the top revenues of the world games sales with an estimated equivalent of $577 million. This suggests that gaming is a popular activity in Saudi Arabia.

Accumulative gaming experience in the study is defined as having played video games continuously for several years on a regular basis. As pointed out by Gee (2003), players have to play "good" electronic games for 50 or more hours in order to have an effective learning experience from games. Therefore, EFL learners' beliefs of their accumulative gaming and its influence on their L2 learning and improvement is an intriguing area to look into that might lead to informative findings.

1.2   Objectives and significance of the study

Much research conducted on gaming and L2 learning in the past has examined the effectiveness of gaming in particular language areas such as vocabulary, which seems to have had the lion's share of attention. Furthermore, many have researched on the potential of gaming for L2 development by utilizing experimental gaming sessions, and learners' beliefs have been explored to determine specific L2 gains after playing video games. However, the previous findings of L2 learners' beliefs might have been influenced by accumulative gaming experience rather than by playing for experimental purposes. The paucity of research surrounding the phenomenon of accumulative gaming by L2 learners in the EFL context warrants more efforts to examine the influence and potential of such an activity on the learning outcomes. It is particularly hoped that the findings of this study will help to delineate what particular L2 areas might be highly influenced by accumulative gaming, and provide teachers, researchers, and curriculum designers with cognizance of the various aspects of gaming that might help or hinder the development of L2 learning.

Specifically, this study therefore seeks to broaden our knowledge about learners' beliefs of accumulative gaming as a means to facilitate L2 learning. In particular, it attempts to examine the influence of accumulative gaming on the development of L2 linguistic competence by looking into what particular areas within L2 learning have more potential for improvement as a result of this activity. Additionally, it aims to delineate how an L2 learner might approach learning in the realm of gaming, and how some underlying factors might impact the potential of video games as a language learning environment. Learners' beliefs of using video games for L2 learning might shed light on aspects and elements that have not received sufficient attention by researchers and teachers, while possibly contributing valuable insights into the strength and weaknesses of gaming as a tool for L2 learning.

Given the above background, this study attempts to answer the following two research questions:

RQ1. According to learners' beliefs, what English language skills and subskills have been positively influenced by accumulative gaming?

RQ2. How have learners experienced English in gaming, and what are some factors that might have helped or obstructed L2 development in this environment?

2   Literature review

The potential of video games to ameliorate learning outcomes in foreign language teaching and learning has been advocated in the past research (Rankin, Morrison, McNeal, Gooch, & Shute, 2009; Struppert, 2010). For example, Gee (2012) maintained that "good" electronic games comprise several design elements that strongly pertain to language learning. Intratat (2011) argued that digital games that are played in meaningful contexts are more conducive to better language learning, while a number of other researchers pointed out that gaming can contribute to language improvement regardless of educational setting and learners' level of proficiency (Gee, 2003, 2004)

Indeed, the fact that gaming can be seen as one of several extramural language learning activities has been shown by a number of researchers, who have highlighted its potential to effectively improve language learning (Ellis, 2008). Young et al. (2012) argued that massively multiplayer online video games, henceforth (MMOGs), can be utilized as a medium that facilitate exposure to authentic L2 learning environments that some other mediums and methods cannot provide. In the same vein, Rama, Black, Van Es, and Warschauer (2012) pointed out that some of the massively multiplayer online role-playing games (MMORPGs) have the potential to turn players' attention toward communicative competence, as games can provide ample opportunities for social learning (Wagner, 2008).

Some other studies suggested that MMOGs can increase the level of motivation and willingness to communicate in English (Smolčec & Smolčec, 2014). Besides, they increase exposure to L2 (Purushotma, 2005), and stimulate learners' employment of several strategies pertinent to L2 learning (Lee & Key, 2008). They also help to provide and facilitate interactive and autonomous learning (Lin & Lan, 2015) and link learned content to real life (Cam & Tran, 2017).

A plethora of studies have also been published on the effectiveness of gaming on language learning. Young et al. (2012) reviewed a multitude of studies and arrived at the conclusion that video games, especially those where interaction is a core element of the games, were shown to highly influence language learning. The focus of some of the aforesaid studies targeted more than one language skill, whereas some others attempted to explore a particular language area such as vocabulary. Research showed that the playing of video games including non-academic video games, Commercial-Off-The-Shelf Video Games, can help language learners to improve L2 proficiency (Peterson, 2012) and communicative competence (Vickers, 2010). Contrasting the opportunities for extended L2 language learning, Thorne, Black, and Sykes (2014) held the view that online games and game-related communities advance more opportunities for L2 acquisition and practice than the limited use, learning, and practice in a school setting.

Second language acquisition theories accentuated that interaction is a key factor facilitating L2 learning (Gass, 2000). Correspondingly, it has been advanced in the current literature that online video games can provide an encouraging environment for interaction among players due to players' status of being unknown, which contribute to decreasing the level of anxiety and make learners feel more at ease while communicating with other players (Reinders & Wattana, 2014, 2015).

A further observation made by some researchers is that gaming supports English comprehension and linguistic ability (Sylven & Sundqvist, 2012), while enhancing the main language skills (Liu & Chu, 2010). More precisely, gaming may contribute to the development of linguistic competence such as reading comprehension skills (Reinders, 2012), listening comprehension (Reinders, 2012; Yudintseva, 2015), and fluency and pronunciation (Holland, Kaplan, & Sabol, 1999). For example, Anderson, Reynolds, Yeh, and Huang (2008) investigated the effect of video games on learners' listening comprehension ability. Their findings indicated that analysis of pre- and post-test scores showed statistical significance in favour of the post test scores.

Furthermore, it has been shown that gaming could facilitate vocabulary learning and acquisition (Young & Wang, 2014; Yudintseva, 2015). Additionally, video games foster incidental vocabulary learning (Sylven & Sundqvist, 2012), situated references of vocabulary items (Gee, 2005), and development of vocabulary learning strategies (Osman & Bakar, 2013).

In a case study by Rankin, Gold, and Gooch (2006b), a game called Ever Quest II was examined with ESL learners as players. Their positive findings showed that most of the participants were able to enhance their speaking, reading, and knowledge of lexical items due to the game and interaction within the game. Rankin et al. (2009) looked specifically at the interaction observed among native speakers of English and English learners within Ever Quest II and showed that gains were seen from such an interaction vocabulary-wise as well as from positive communication and extensive oral production by learners with the native speakers.

A study conducted by Alshaiji (2015) examined the effectiveness of digital games on English learning and the reading skill with a focus on vocabulary learning and

retention. The findings showed that there was a significant difference between two groups of learners in favor of the group that utilized digital games. Alshaiji linked the positive outcomes of the study to the aspect of enjoyment that was associated with English learning though the use of digital games.

Alsayegh (2016) explored possible development in the area of vocabulary acquisition through gaming, finding that gaming helped learners to retain English vocabularies, while Rogers and Johnson (2016) explored whether gaming would be helpful for the L2 acquisition of learners, finding that the games helped most of the learners to improve English reading, listening, speaking and vocabulary.

Al-jifri and Elyas (2017) investigated English language acquisition as positively influenced by digital games. Their findings indicated that digital games were key to learners' English development and ameliorated their L2 production. Moreover, these findings suggested that the participants' L2 improvement was due to continuous exposure to digital games in which most of the in-game content was provided in English language.

Similarly, Sylven and Sundqvist (2012) looked into the extent to which time spent on gaming can be linked to English competence. They found a positive correlation between English competence and long-term gaming. Another study that examined accumulative exposure to MMOGs is found in Horowitz (2016), which aimed to explore the potential of digital games to increase learners' willingness to communicate (WTC) in L2 and decrease language production anxiety. The findings showed a statistically significant link between accumulative exposure to MMOGs and higher L2 WTC and lower L2 language production anxiety.

All in all, the current literature points strongly to the positive role that accumulative gaming can play in developing EFL learners' linguistic competence.

3 Research Methodology

3.1 Data collection

This study employed a mixed-method approach to collect data from undergraduate students majoring in English Language and Translation at a public university in Saudi Arabia about their beliefs regarding accumulative gaming experiences and their EFL learning. The data collection consists of a two-section online questionnaire (see **Appendix**) and semi-structured oral interviews. The questionnaire was administered via the platform Google Forms. The link for the questionnaire was distributed to the participants via Blackboard (a virtual learning environment) that the participants can access.

After excluding non-gamer participants according to responses in the questionnaire, the sample consisted of 101 Saudi students. All the participants were enrolled in core/elective courses that were taught by the researcher.

After having a discussion with the participants about gaming and language learning, the researcher invited learners to complete the survey, provided that they were informed that participation is optional, and that it is not going to affect their final grades in those courses. All the participants completed the survey voluntarily and submitted their responses. The semi-structured oral interviews were conducted one week after the participants submitted their responses; several participants were invited for interviews, and the ones who agreed to do so (15 participants) were interviewed.

3.2 Participants

All the participants were males, and their ages range from 20 to 25 (Mdn=22), whereas 2% are older than 25 years of age; 16% were in the second year, 54% were in the third, 19% were in the fourth, 9% were in the fifth year, whereas 2% had been attending the university for six or more years. The Statistical Package for the Social Sciences (SPSS) v. 24 was employed for quantitative

data analysis. Descriptive statistics were utilized that comprised item-related number of responses and percentages, means, and standard deviations.

3.3   Instruments used

The two instruments employed in this study were designed by the researcher after an extensive review of literature (for example, Gee, 2007; Peterson, 2010; Peterson, 2012; Rankin et al., 2006b; Rankin et al., 2009; Reinders, & Wattana, 2015).

The first instrument was a questionnaire (see Appendix) that consisted of 18 items organized around two blocks: Block 1 collects demographic information (8 items) and Block 2 explores possible developed areas of English as a result of accumulative gaming experience (10 items). The internal consistency reliability was measured Cronbach's alpha resulting in (α = .87); the questionnaire items were deemed reliable. Answers to the questionnaire items used a five-point Likert scale ranging from Strongly Agree to Strongly Disagree.

The second instrument was semi-structured oral interviews that explored how learners experience gaming where the medium of communication is English. Interview questions included for example: describe your experiences learning English language while playing video games? In what part of gaming do you activate the English learning mode? Why? How? The interviews were conducted using the participants' first language (Arabic). The participants' quotations were translated into English for the purpose of inclusion in this study.

4   Results and findings

4.1   Gaming experiences of the participants

When asked about their gaming experiences, 89% of them acknowledged that gaming for them has started in the past until now, while 81% of the participants reported playing video games for more than five years. Moreover 63% of the participants play video games for 1 to more than 3 hours per day. In addition, 53% of the participants prefer playing video games in English, whereas (43%) prefer both Arabic & English. Furthermore, 57% of the participants play video games in groups with people who speak Arabic as well as others who speak English, while communicating with them accordingly. Additionally, the preferred genre of video games was action games followed by sport and adventure games with 91%, 70%, and 65% respectively.

4.2   Questionnaire responses

The first research question sought to investigate the impact of video games on the improvement of learners' English language skills and subskills according to the participants' beliefs of their accumulative gaming experiences. Broadly speaking, the results as shown in Table 1 suggest that learners had positive experiences learning and practicing English while gaming. This can be noted in the level of agreement represented by high mean scores. Specifically speaking, among different items representing English skills and subskills, 4 items received the four highest mean scores (items 9, 3, and 10 respectively). That is, according to the learners' gaming experiences, gaming fostered new vocabulary learning (vocabulary breadth) (M= 4.48); supported them improving listening skills (M= 4.29); and helped them increasing vocabulary depth (M= 4.26). Items (1 and 4) received notable high means indicating the positive L2 learning experiences while gaming and the contribution of video games to enhance L2 reading. In contrast, 2 items had the lowest mean scores (items 5 and 7) with the highest disagreement among all items with (M= 3.1) and (M= 3.2) respectively. That is, based on the majority of the participants' accumulative gaming experiences, video games have not provided considerable support in terms of improving writing skills or knowledge of grammar.

Table 1. Learners' Beliefs of English Skills Development Through Accumulative Gaming

Statement	M	SD
1. In general, video games helped me to improve my English.	4.10	.714
2. Playing video games helped me to improve my speaking skills.	3.94	.881
3. Video games helped me to improve my listening skills.	4.29	.739
4. Playing video games helped me to improve my reading skills.	4.12	.864
5. Video games helped me to improve my writing skills.	3.01	1.025
6. Playing video games helped me to improve my pronunciation.	3.95	.865
7. Video games helped me to improve grammar.	3.02	.980
8. Playing video games helped me to improve spelling.	3.86	.884
9. Video games helped me to learn vocabulary and know more words.	4.48	.593
10. Playing video games helped me to know different meanings of words.	4.26	.716

4.3   Interview responses

The majority of the participants acknowledged the involvement of L2 learning in their gaming. They noted that interaction with others within the games was a helpful factor, and that they did not immediately realise that they were subconsciously learning English while gaming.

> I was playing for fun. But a big part of my English learning was because of video games. I was learning so much about pronunciation, and I think the most part [of my learning was] when I began talking with people in games. I started multiplayer online games a long time ago. I became almost a native like speaker, and video games were the primary reason for this. (Student 6, Interview)

> During [the] early [stages of] gaming, I was not interested in learning English while playing. Later, I have noticed that, while playing, I learn English. When I felt that I learn English from gaming, I started to seriously consider language learning in video games. (Student 3, Interview)

For the majority of the participants, gaming provided a resource for English input through listening, leading to improvement in aural skills. Three of the reported resources of oral input were characters' interaction, games instructions, and communicating with other players.

> Other skills I improved from gaming is listening. In particular, campaign games. I focus on what [the] characters say. What I mainly listen to much is game instructions more than other players. (Student 2, Interview)

> I listen to both real people, I change the servers to talk with native speakers, … and instructions in the games where characters' voices were recorded by native speakers from the games themselves. So, I learn in *(sic)* both when playing alone and in multiplayer games. (Student 4, Interview)

Most of the participants indicated learning vocabulary from gaming; more than half of the participants reported taking the effort to translate phrases while playing, which resulted in unintentional learning and memorizing of English words.

> You learn English without knowing. Before I major in English, I used to try to translate words in games. Later, I realized that my vocabulary size has increased without intentional effort. (Student 10, Interview)

> When I play games that have tricky things and puzzles, and I do not understand the English in them. I have to translate and work hard to know the language and understand the game. When I translate, I understand the meaning of words. Each word I translate I save and memorize. (Student 11, Interview)

Written language in video games facilitated identifying and knowing vocabulary and was a useful resource for developing L2 reading skills.

> There is the type of novel games where they are based much on the story. There is more story than play… there is much written language; there is reading more than playing. (Student 9, Interview)

> Some vocabulary when they [the characters] talk, appear in subtitle… Words are difficult, but from what you see in the games you can mostly understand. There are elements in the games that help you to understand words. (Student 8, Interview)

Almost half of the participants reported that gaming helped them with pronunciation through attention to how words are uttered in games.

> You have to focus; so, listening is attended to more. when you listen, you acquire pronunciation. You acquire pronunciation from much listening. (Student 13, Interview)

> Of course, I think pronunciation improved a little form video games. Especially if there is a word I know but do not know how to pronounce, I learn that from games. (Student 15, Interview)

A salient, common factor that contributed to the effectiveness of L2 learning through gaming was the level of enjoyment and excitement due to the gaming experience.

> Because learning in games is not required. You play to enjoy. There is enjoyment and learning; and you do not have to learn. You play for fun and if you want the complete experience you also learn. (Student 9, Interview)

> A question: which one is better: to learn in a traditional way… or you learn while you enjoy. So, you enjoy the game and at the same time sometimes you learn without knowing. (Student 13, Interview)

In contrast, game difficulty was a hindering factor for more than half of the participants, hindering L2 learning through gaming. It distracted the participants from attending to English learning and directed their efforts to merely play the games successfully.

> Games level of difficulty can impact the focus on language. Because the focus would be on successfully proceeding in the games' stages more than language. You do not focus on conversations, texts, and you do not read. (Student 5, Interview)

> I think game difficulty is an obstacle. It happened to me. When the game is very difficult, here I do not focus on language at all; I just try to progress in the game a little. (Student 15, Interview)

For the majority of the participants, adventure type of video games have a greater potential to improve English skills as it provides a within-the-game story. This game type draws attention to the language used in conversations throughout the various games stages and the association of vocabulary items with different adventures in the games.

> Adventure games I think they can help more in learning because they provide conversations and story. Stories in adventure games demand knowledge of English. (Student 8, Interview)

> In adventure games, you move from one place to another; so, in each new place you have memories linked to certain vocabularies. Each word is linked to this or that place. (Student 9, Interview)

> There are no specific things in adventure games; you do not know what to do; so you have to pay attention to conversations and interaction in the game… In football games, you know the objective is to score and win, so I do not think the focus would be on language. (Student 6, Interview)

Interesting storylines within games aided L2 learning, leading to much interest in the language within games. Almost half of the participants reported that they mostly engage in active English learning when playing story/stages-based video games.

> Some games have exciting stories that appeal to me and make me interested in all conversations among characters; thus, I do not skip conversations and that helps me to learn English. I can also read the tasks that I should do… Games with stories are effective because you focus more on story and conversations in the game. (Student 2, Interview)

> It is mostly one of the most times that I use the language. When the game is enjoying, and include stages and has an interesting and exciting thing, in this situation, I think I can learn much; especially when it has an interesting story. (Student 15, Interview)

MMOG-type of games provide an encouraging and comfortable environment for practicing oral English with native and non-native English speakers. More than half of the participants indicated that MMOGs do not provoke anxiety when making mistakes which is attributed to players' anonymous status in the gaming community.

> Multiplayer games are encouraging if you focus; if you want. Because you do not know other players… so there is no pressure and if you make mistakes you do not feel embarrassed. (Student 7, Interview)

> I think multiplayer games highly encourage me to use English while playing. When you communicate with people much... that you have no relationship with, it is fine to make mistakes; it is fine to speak less fluently. But, they understand you which makes me feel more comfortable. (Student 13, Interview)

> Yes, multiplayer online games are very helpful. The interaction in them is good. Especially the games that provide sometimes a European or American server, so almost 90% or 95% that one talks with are foreigners. (Student 6, Interview)

However, one of the disadvantages in MMOGs is the occasional offensive language produced by other players which is a demotivating factor that hinders communication in L2 while gaming.

> Sometimes, in some games you want to use English and communicate. Sometimes, you do not depending on the person [you talk with]. In some online action games, there is much bad language. So, there are not many opportunities. (Student 8, Interview)

> Environment in multiplayer online games is not encouraging because of the nature of the game. Also, I find the problem of trash language… I stop communicating. That is why I do not attempt to communicate with people whom I do not know in the games. (Student 15, Interview)

Attempts to initiate or maintain communication when playing MMOGs were not a priority for more than half of the participants. Most communication in MMOGs occurs for playing purposes as opposed to oral language practice.

> If other players start communication, I communicate… I talk about the game only… Sometimes, I start communication, sometimes they do; but, mostly they start communication. I wait for them to do that. (Student 7, Interview)

> Communication continues for the game… I know it can benefit me; but I do not start communication for English learning but for playing the game. But if it continues, it is a good thing. (Student 15, Interview)

5 Discussion

By and large, the results showed extensive experience represented by years of gaming and several hours of play time per day. Wouters, van Nimwegen, van Oostendorp, and van der Spek (2013) postulated that the reason for playing electronic games for a lengthy period of time is the instilled core element of satisfying and pleasurable gains found in gaming. In addition, the results suggested that English was involved as a medium of communication for gaming. Furthermore, the main genre

of games played were action, sport, and adventure respectively. Similar findings were reported in Alsayegh's (2016) study regarding the most favoured types of video games by Saudi EFL learners.

The findings suggested positive experiences pertaining to English learning through gaming. Particular language skills and subskills were, according to learners' beliefs, suggested to have been highly influenced by accumulative gaming: learning new vocabulary (depth & breadth), listening, and reading. These findings are consistent with Rogers and Johnson's (2016) findings that gaming supported the development of listening, reading, and vocabulary of English learners. Development in vocabulary knowledge from gaming is in harmony with the previous studies of Young and Wang (2014) and Yudintseva (2015) and Alsayegh's (2016). Vocabulary gains through gaming might be attributable to the excitement found in games which in turn might contribute to motivate learners to play and learn L2 vocabulary (Abu Bakar & Nosratirad, 2013).

Moreover, the contribution of gaming to the improvement of reading and listening skills is in line with the findings of Reinders (2012) and Sylven and Sundqvist (2012), reporting that digital games ameliorate comprehension within those main skills. The findings of development of the major skills through accumulative gaming are partially consistent with what Liu and Chu (2010) found, contending that gaming contribute to the improvement of all main language skills.

However, the current study revealed that the L2 speaking skill did not receive a similar higher score as listening and reading skills. Developmental patterns in writing and grammar were not strongly noted by the participants as an outcome of accumulative gaming. This might signify that the nature and design of current commercial games provide fewer opportunities for written communication as compared to the opportunities available for oral communication. This in turn might question the potential of current commercial video games to effectively enhance L2 writing skills.

In terms of grammar improvement, the findings are not in line with Horowitz's (2016) findings that reported that MMOGs supported the improvement of formalizing English sentences beyond learners' current grammatical competence. In the present study, learners reported that accumulative gaming has not increased L2 grammatical knowledge. This might be due to high levels of interactivity and the environment of games as not providing sufficient opportunities for inductive learning of grammar. Furthermore, it might accentuate that some learners need, or are used to, explicit instruction of grammar in order to develop their grammatical repertoire.

Comparatively, the findings indicated that spelling has not developed significantly from gaming which is in line with Hung's (2011) findings. In addition, an item that received an above moderate score was the development of pronunciation through gaming. Holland et al. (1999) pointed out that digital games and simulations can help language learners to improve pronunciation of the target language.

Generally speaking, the interviewees' responses were in congruence with the quantitative results, indicating positive learning experiences through accumulative gaming. This main finding is consistent with Al-jifri and Elyas' (2017) findings that gaming availed the development of English skills and supported oral production abilities. The researchers also pointed out that such L2 improvement was due to accumulative exposure to digital games in which the in-game content was in English language. Moreover, Peterson (2012) noted potential L2 proficiency improvement as a result of gaming.

Regarding L2 strategy use, translation was utilized in gaming as it helps to understanding requirements, objectives, and conversations in games which was conducive to language learning and retention. Lee and Key (2008) mentioned that gaming stimulate learners' employment of several strategies pertinent to L2 learning. The researchers noted that predisposition toward reading the in-game written language and familiarity with words meanings can support language learning. Improvement in L2 reading has been supported by reading texts within games, which is sometimes necessary to successfully proceed in the games.

Additionally, in MMOGs, development in L2 speaking was enhanced by oral communication with other players, L2 native and nonnative speakers. This finding is in harmony with Rogers and Johnson (2016) who found that video games and interaction with native speakers through MMOGs

helped learners to enhance their oral skills. Peterson (2010) also suggested that interaction in video games that occurs among players aid L2 learners to develop their L2 skills.

A helpful factor influencing L2 learning through gaming was enjoyment. This is in agreement with AlShaiji (2015) who found a link between positive outcomes of vocabulary learning and learning English in an enjoyable way through gaming. It might be due to the nature of gaming environments where the inherent excitement factor is conducive to paying more attention to language. In addition, the findings showed that exciting story-based adventure games have the more potential to foster English learning as their design demands dealing with English frequently and attentively. According to Braghirolli, Ribeiro, Weise, and Pizzolato (2016), learning experience is the outcome of the interaction within the game itself and all its related elements.

On the other hand, game difficulty was an impeding factor and seen as a major obstacle preventing the learners form L2 gains through gaming. Paying attention to both playing and language in games might be a challenging task for players. deHaan, Reed, and Kuwanda (2010) noted that increasing cognitive load that results from serious game play can possibly impede retention of encountered vocabulary items.

The findings also shed light on the learners' experiences of communicating with other players in English in the environment of MMOGs. The findings revealed less potential of oral skills development in those games that is caused by less frequent oral communication in those games. Infrequent communication was due, sometimes, to occasional occurrence of abusive language. It resulted in the loss of interest for communication and relinquished attempts to use English while gaming. Based on Kwak, Blackburn, and Han's (2015) findings, offensive language is one of the most identified problems found in MMOGs. Nevertheless, the findings, by and large, revealed that the environment of MMOGs is encouraging and comfortable for language practice.

Reinders and Wattana (2015) mentioned that MMORPGs can decrease the level of anxiety due to players' state of anonymity. There are opportunities to use language with other players in which there is no pressure or embarrassment when making L2 mistakes. Feeling at ease while communicating in these games fostered language production associated with risk-taking and encouraged the use of L2. This is in congruence with what Peterson's (2011) and Reinders and Wattana's (2014) studies revealed about the association between enhanced WTC in L2 and MMOPRGs. Additionally, this finding is in line with Horowitz's (2016) that suggested the strong association between accumulative time spent on MMOGs and increased level of L2 WTC and decreased levels of oral communication anxiety.

Moreover, two of the learning principles that Gee (2003) emphasized as existing in "good" electronic games are encouraging the behavior for risk-taking and practice. Peterson (2012) found that talking with native speakers in MMOGs fostered EFL students' risk-taking. The environment of MMOGs seems to induce interactivity and communication with other players (Zheng, Young, Brewer, & Wagner, 2009). Hayes and Duncan (2012) pointed out that the context of MMOGs might help to reduce anxiety of negative evaluation, which is conducive to practicing L2 without feeling pressure or embarrassment.

6   Conclusion and Implications

This study revealed that students have had positive English learning experiences through gaming. The language learning gains were suggested to occur through the improvement of particular language skills and subskills, namely listening, speaking in relative terms, reading, pronunciation, and vocabulary. Moreover, it was shown that other skills (writing and grammar) did not highly improve as a result of accumulative exposure to video games. The story-based adventure games genre has more potential to engage players in language learning. Furthermore, enjoyment was the core factor that led learners to become involved in their L2 learning, whereas game difficulty detracted them from engagement in L2 learning.

One of the major findings revealed that accumulative gaming supported L2 receptive skills more than productive skills. That is, commercial video games provide considerable opportunities for L2

input, whereas L2 output is, to some extent, confined by the nature of games design, the within-game provided mediums for written and verbal communication, and demotivating factors such as offensive language in MMOGs.

A number of pedagogical implications can be drawn from this study. First, developmental patterns of L2 that resulted from accumulative gaming seem to be associated with particular but not all language skills and subskills. This should inform teachers to exercise caution when utilizing commercial video games for English learning. Teachers should acquaint themselves well with any intended-to-be-used video game to maximize the potential of their use (deHaan, 2011), and plan their tasks accordingly to achieve the desired learning outcomes. Second, gaming is popular among EFL university students, suggesting that it can be a suitable resource for English learning as an extramural activity due to the aspects of availability and comfortable environment. Teachers can raise learners' cognizance of the potential of utilizing video games to improve L2. In so doing, learners can exploit this resource to learn and practice L2, which is not confined by restrictions of time or place (Reinders & Wattana, 2015). Shaffer, Squire, Halverson, and Gee (2005) went further to note that the inherent capabilities of digital games can alter future education. Third, claims cannot be made that all learners can benefit significantly from accumulative gaming. Fourth, professional development and extending knowledge about gaming might equally aid teachers and curriculum designers to appreciate the potential of digital games to enhance language learning (Anderson & Barnett, 2011).

Finally, it is crucial to note some limitations of this study. First, the sample consisted only of male EFL learners. Future research can explore whether female EFL learners have similar developmental patterns in terms of English skills through accumulative gaming. Second, this study did not attempt to provide a comprehensive account of all English communicative competences. The scope of this study was mainly geared toward exploring linguistic competence gains through gaming. Besides, research can examine some English skills and subskills profoundly which have not been sufficiently explored in literature such as spelling and inductive learning of grammar through gaming. Additionally, longitudinal studies that investigate the development of L2 learning and acquisition through accumulative experience are warranted in order to confirm findings that emerge form self-reports.

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Appendix
Video Games and English Learning Questionnaire
Instructions: Read the following questions and choose the answer that best represents you.

1. Age:
   - 18 - 19 - 20 - 21 - 22 - 23 - 24 - 25 - older than 25
2. Number of years in the English department:
   - 1 - 2 - 3 - 4 - 5 - 6 - more than 6 years.
3. Have you ever played video games?
   - never - only in the past - started playing recently - started years ago and still playing

4. Duration of playing video games:
   - < 3 months - 3 month - 1 year - 1–3 years - 3–5 years - > 5 years
5. Duration of playing video games in hours:
   - 1 hour / day - 1–3 hours / day - > 3 hours / day - a few hours / week - a few hours / month
   - not regularly (play from time to time)
6. Preferred language of video games:
   - Arabic - English - both Arabic & English - others
7. Genre of video games that you play:
   - action - adventure - sport mystery - horror - strategy - shooting - simulation - educational – others
8. You play video games:
   - alone - with other players and you do not communicate - with players speaking Arabic
   - with players speaking English - with players speaking Arabic and English

Instructions: Read the following statements and indicate if you (strongly agree (SA), agree (A), are neutral (N), disagree (D), or strongly disagree (SD) with each statement.

Statement	Degree of Agreement				
	SA	A	N	D	SD
1. In general, video games helped me to improve my English.	SA	A	N	D	SD
2. Playing video games helped me to improve my speaking skills.	SA	A	N	D	SD
3. Video games helped me to improve my listening skills.	SA	A	N	D	SD
4. Playing video games helped me to improve my reading skills.	SA	A	N	D	SD
5. Video games helped me to improve my writing skills.	SA	A	N	D	SD
6. Playing video games helped me to improve my pronunciation.	SA	A	N	D	SD
7. Video games helped me to improve grammar.	SA	A	N	D	SD
8. Playing video games helped me to improve spelling.	SA	A	N	D	SD
9. Video games helped me to learn vocabulary and know more words.	SA	A	N	D	SD
10. Playing video games helped me to know different meanings of words.	SA	A	N	D	SD