

VIDEO GAME: A VOGUE FOR BETTER EDUCATIONAL PSYCHOLOGY AND LANGUAGE LEARNING

Farzad Parsayi

Monash University, Australia

Ali Soyooof

Islamic Azad University, Shiraz, Iran

ABSTRACT

Vocabulary is deemed as one of the most integral constituents of a language. It is common knowledge that the more vocabulary one knows, the better one can express oneself. Language learners mostly express their unwillingness to learn vocabulary because it is deemed a laborious task. However, video games are regarded as one of the tools with which students can expand their repertoires of vocabulary. In the context of meaningful learning the study's focus on video games sought to explore students' perceptions of their vocabulary learning through their experience playing video games as a pass time. Language learners involved in playing video games on a regular basis are typically introduced to contexts and tasks that require them to acquire a bulk of new vocabularies to be successful in the game. Thus, the content and challenge presented in video games can motivate players to learn the vocabulary necessary to be able to accomplish each level of the game and gradually increase the breadth and depth of the language involved. With this in mind this study explored seven Iranian, English as a foreign language, learners' perceptions of whether video games played a crucial role in expanding their repertoire of vocabulary. Being experienced in playing video games as a stimulus for the research they were asked to play the specific game, *Hitman Absolution* (2012), after which they were interviewed about the experience. The analysis of interview data indicated that the students believed that the experience of playing video games provided a deeper learning experience in terms of acquiring the vocabulary involved and that their learning of the vocabulary was implicit to playing the game. Recommendations are made for extending the research.

Keywords: Incidental learning, Meaningful learning, Second language acquisition, Video game, Vocabulary expansion, Vocabulary learning

INTRODUCTION

The growing interest of the new generation in video games can hardly be neglected. Different statistics and surveys underpin the veracity of the argument that a considerable number of people allocate a substantial period of their daily lives to playing these games. Hence, it would seem justifiable to explore the uptake of video game playing as a potential learning resource from the perspective of the players to canvas their views about perceived benefits. While there may be some mismatch between policy makers' views of their potential as education resources compared with video game players themselves, studies to date have included different line of inquiries, ranging from neurology (Palau, Marron, Viejo-Sobera & Redolar-Ripoll, 2017) to psychology (Green et al., 2017). For instance, in the psychological domain, some studies highlight the therapeutic influence of video games (Barnes & Prescott,

2018; Lai, Ho & Warburton, 2017), while other investigations accentuate the potential impact of video game in brutalizing players in their daily lives (Greitemeyer, 2018; Kühn, Kugler, Schmalen, Weichenberger, Witt & Gallinat, 2018). Thus, there is no crystal-clear argument regarding any overall positive effect or negative influence of video game. But, what can be firmly propounded is that video games can have both positive and negative impacts. The main thrust of this study is to understand whether video games can play any important role in aiding language learners to expand their vocabulary.

LITERATURE REVIEW

The Challenge of Finding a Suitable Definition for Video Game

The primary concern in the realm of video games is finding an appropriate definition, since without knowing what a video game comprises or how it is conceptualized there would be no capacity to enumerate its merits. Unfortunately, there is no mandate among scholars and investigators with regard to what might be attributed to the video game as a genre. However, Esposito (2005, p. 2) states: “a video game is a game which we play thanks to an audio-visual apparatus and which can be based on a story”. To some extent this definition helps differentiate the video game from games in general and importantly for this research it supports the study’s aim to illuminate the most recent and prevalent denotations of video games as being mostly story-based¹, although there are a variety of ways to embrace narrative aspects in a video game as Pearce’s (2004) states:

The first and most important thing to know about games is that they centre on PLAY unlike literature and film, which centre on STORY, in games, everything revolves around play and the player experience. Game designers are much less interested in telling a story than in creating a compelling framework for play (as cited in Esposito, 2005, p. 4).

When considering abstract games such as Qix (1981) and Tetris (1985) (see Wolf, 2012) the fact that not all video games are necessarily perceived as story-based games can be appreciated. Besides, Pearce (2004) ascertained his own view of simulations of systems that have been imagined by their designers. Simply put, it is better to perceived video game as a virtual game, because a video game’s elements cannot be manipulated in the actual world.

Interactivity

Video games can be potential sources of language input for language learners. However, the most important characteristic of games’ interactivity has mostly been ignored in research. A study by Reed (2010), worked on the issue of interactivity and its relationship to vocabulary recall. These experimental studies investigated to what degree, if at all, video game interactivity might help or hinder the noticing and recall of second language vocabulary. In this study, the subjects were divided into two groups of players of games and watchers of games, and vocabulary recall was compared between the two groups. The study revealed that the watchers of the game recalled more vocabulary items than the players and interestingly the players’ poorer recall of vocabulary was attributed to their need to interact with the video game. However, it is important to note that the study’s investigation of the

¹ It is acknowledged that there are some exceptions like the Tetris (1985) videogame that demonstrates that story is not a must.

difference between the players' and watchers' mental effort found no statistically significance between the two groups. It was concluded that the physical interactivity of this particular video game produced an extraneous cognitive load. The interactivity involved was seen as not conducive to learning since it seemed to unnecessarily divert the players' attention away from the vocabulary and therefore hindering the potential for recall. Nor was the interactivity of this video game seen as having the ability to contribute to schema development. In contrast, because the watchers were not exposed to the additional extraneous load of the physical interactivity they were found to be able to devote more cognitive resource to the intrinsic load of the game and its language, thus supporting their recall of the vocabulary. Similarly, earlier research conducted by Pellouchoud et al (1999), found greater cognitive load was associated with playing a video game than when watching a video game. This phenomenon was also reported by Brett (2001) and deHaan (2005) who found that interactivity with foreign language multimedia learning environments may also hinder language acquisition.

Learning a Foreign Language and Use of Technology

The widespread popularity of digital video games over the last decade has aroused many researchers' interests to examine their educational value. Thus, many researchers have investigated the application of video games for educational purposes. Yang and Chen (2012), for example, studied 60 Taiwanese EFL learners and investigated their perceptions of a commercial adventure video game for language learning. The students were found to hold positive attitudes toward the use of this kind of game to support their language learning. It was shown that they believed the game was particularly helpful for improving their receptive language abilities/knowledge, such as vocabulary, listening and reading. The game's context-rich learning environment was shown to foster to students' ability to receive multiple language input (e.g., textual, pictorial and aural). The students were of the view that the game could increase their vocabulary size through its ability to present new words with symbols. The games use of pictorial aids was also found to be an important contributor to students' ability effectively recall vocabulary and retain it. However, although the students reported improved receptive language skill/knowledge, they were of the opinion that the game was less beneficial to their productive language skills (e.g. writing and speaking). This was attributed to the game providing more limited opportunities to produce language output. This was in spite of being able to choose different replies by encountering a dialogue tree, plus since there were there pre-set, fixed replies this did not allow the students to reconstruct the sentence structures. Hence, for educators aiming to facilitate language learners' speaking and writing skills through commercial adventure games, this research shows the need to carefully evaluate a game's potential for fostering language learning.

Meaningful Learning

For learning to be attractive and sustainable it is well recognized that it must be meaningful for the student, thus Ausubel's (1963) meaningful learning/assimilation theory is considered an important underpinning base for the study. It is grounded in the assumption that learning embraces not only cognitive structures but also a meaningful learning process. Simply put, learning includes thinking/cognitive and metacognitive abilities, which contrasts with behaviorists' assumptions that learning is merely an external behaviour regardless of any kind of thinking (Olson & Hergenhahn, 2009). Both the theories of Piaget (1969) and Bruner (1986) are in line with Ausubel's stance, as they recognize an internal cognitive structure in knowledge (Lawton et al., 1980; Navaneethan & Kmalanabhan, 2017). What is of great importance in meaningful learning is the reckoning of ways that new information

interconnects with previous information to allow “sense to be made”, where the learner makes new meaning or in language learning there is restructuring (Ausubel, 2000; O’Malley, Chamot & Walker, 1987). In essence, in meaningful learning there is an expectation of noticeable intrinsic motivation (Valerio, 2012). What is more, as McLeod (2003) asserts, whenever the process of learning is accompanied by several learning experiences with the provision of support to guide and clarify, the result should be more effective. Meaningful learning is also seen as coming about when the information is stored in a relevant way. To put it simply, the brain needs to keep information together since interconnectedness is central to the making of meaning. Using computer operations as a metaphor, it can be appreciated that memory is vital to support cognitive processing and the ability to recall, and with respect to developing bilinguals the concept of “activation spread” is well recognized as fostering both close and more distant connections (see Kharkhurin, 2017). Learning through activation spread is seen as more applicable for constructing meaning and problem solving compared with rote-learning for learners (Mitchell & Myles, 2004). Learners benefit from rote-learning through memorization, when the information they store, though it may be typically unrelated and in separated chunks, such as multiplication tables and days of the week, comprise retrievable facts that can be remembered individually and recalled automatically (Ormrod & Davis, 2004). Ausubel's theory of meaningful learning tries to investigate how an individual learns large amounts of material meaningfully in either textual or verbal presentations in the classroom context. Learning is seen as grounded through not only super-ordinate and representational processes but those that are combinatorial as well occurring during the reception of material/input. In his initial process of ‘subsumption’ new information is related to previously connected material in cognitive structure in a substantive manner, and is non-verbatim. Nuthall (2013, p. 700) notes that “the major problem that confronts the teacher is how to structure and guide the students’ mental processes so that the ‘residue’ of these mental processes is consistent with desirable curriculum outcomes.” Cognitive structures display the residue of all learning experiences; forgetting comes about owing to particular details losing their own individual identity (Ausubel, 2000). Ausubel's theory, like Gestalt theory emphasizes schema as a central principle, and similarly Bruner's "spiral learning" model (Bruner, 1966), includes reorganization of previous learning material in a restructuring process to create new knowledge in keeping with Piaget and Vygotsky’s Zone of Proximal Development (ZDP) and social constructivist theory (Malik & Wiseman, 2017). An influential instructional mechanism suggested by Ausubel is taking advantages of advance organizers. Teachers use an advance organizer as a conceptual strategy to prepare the learner cognitively for what is expected in terms of the learning objective (Mohammadi, Moenikia & Zahed-Babelan, 2010). Ausubel, Novak and Hanesian’s (1978) views on meaningful learning ultimately noted the importance of cognitive interactions in learning in terms of assimilation. Important for the present study is the theory that three major learning processes underpin meaningful learning and assimilation theory, namely: (1) Subordinate learning (consisting of derivative assumption and correlative assumption); (2) Superordinate learning and (3) Combinatorial or comparative learning. The latter makes a distinction between the newly provided information and that previously provided by highlighting the similar aspects of two kinds of material and indicating the sort of material that should be learnt.

Ausubel et al (1978, p. 68) argued that “new information is linked to relevant, preexisting aspects of cognitive structures and both the newly acquired information and the pre-existing structure are modified in the process” of making meaning. This presents synergies with recent research into cognitive theory, artificial language learning and restructuring in second language acquisition (Hudson Kam & Newport, 2009) and the earlier research of O’Malley, Chamot and Walker (1987) and Rumelhart and Norman (1978). In addition, as Fedzechkina, Jaeger and Newport (2012) found in their study on how language

learners restructured their input to facilitate efficient communication and possible learning bias, ‘misinterpretation’ arose when form-meaning mappings were reconstructed from memory, although sentence meanings were supported by a video of the intended meaning. This has implications for the potential of video game playing to develop vocabulary and justifies the need for further research.

Educational Psychology

For this research, it is important to understand that there are a number of factors in the design of video games that relate to the psychology of learning in education and language acquisition. These need to be taken into account so that learning opportunities can be enhanced and language learning in particular can be enhanced (Soyooof & Jokar, 2014). As found by Soyooof and Talei (2013) in a qualitative study, video games assisted language learners to enhance their motivation and risk-taking among other factors. They also found that video games were responsible for enhancing both affective and psychological factors among language learners. These factors included meaningful learning, automaticity, lowering of language inhibition, and the anticipation of rewards. Importantly, video games were found to be helpful in enhancing cognitive and linguistic variables as well as affective variables regarding language students’ learning, which in turn resulted in the students attaining a more effective language learning process (Soyooof & Jokar, 2014) indicating as part of this the important role of vocabulary acquisition.

RESEARCH DESIGN

Materials for the Study

Hitman Absolution (2012) was the video game used in this study. In the *Hitman* video game series, the players take the role of a hired professional assassin that is created from a genetic mutation. He is prepared to engage in various missions, and he has a cold and calm character who earns money by working for an agency ironically called “Agency”. The methods to be used and the resources needed to carry out the work are chosen by the players. For instance, the player may prefer a pistol with a silencer, or a knife, or may choose something noisier like an automatic weapon or an effective sniper rifle, or perhaps he or she prefers a piano string with which they quietly approach the victims and eliminate them with a quick and silent tug. The *Hitman* video game for players indicate they are free to choose how to approach each mission either as a stealthy professional or in an amateur careless and noisy way. In the game series here the players take on the role of Agent 47 (the protagonist) to carry various missions of assassination. When doing this they have the opportunity to interact with all kinds of dynamic materials in the game (e.g. clothes, various objects). This series is different from other stealth action video games since *Hitman* is not based on the agent pulling the trigger against all who stand in his or her way as is the requirement of many other games. As finely expressed by a video game critic:

[The original concept](#) that made *Codename 47* innovative at the time, was the way it handled stealth. Most stealth games would usually involve having to avoid the line of sight of an enemy, such as *Splinter Cell*'s use of shadows to avoid detection and *Metal Gear Solid*'s use of standing behind things and later, its use of camouflage. *Codename 47* however, asks that the player doesn't hide out of sight, but instead in plain sight of the enemy.

Similarly, [tvtropes](#) reports the following:

Players are scored on stealth, so ideally, you should only kill your targets and leave without alerting anyone, like a real assassin. That said, if (hah! *when*) you are discovered, or if you become addicted to the Ragdoll Physics, you can Rambo your way through everything in your path—but you won't escape the consequences if you leave a trail of bodies behind you. The missions aren't really designed for FPS-style killing, and you'll soon find that stealth is far more fun and rewarding . . . The games are well known for their replayability and emphasis on variation. Most every level across each game is designed to be replayed multiple times as there are multiple solutions to each kill.

There are dialogue options with many of the characters in every mission. No doubt these aspects are the great advantage of the game, in conjunction with the fact that the players have a myriad of ways to execute the mission without being seen.

Over the years the *Hitman* video game saga has become one of the most acclaimed franchises of action and infiltration of third person genre. That is why when there is talk about a hired assassin as the main character in the video game industry, it is inherently referring to Agent 47. The *Hitman* series made its debut in 2000 with the video game *Hitman: Codename 47*. However, the present research used *Hitman Absolution*, which is the fifth instalment of the series, which includes many changes and improvements to the franchise. The graphics are described as spectacular, with many kinds of realistic detail and very colourful textures. The game perfectly recreates a variety of landscapes and objects with the highest possible quality as depicted in Figure 1, since it has one of the best graphic engines of the time.

Another major achievement of the game is the sound system. The sound system in this instalment is of outstanding quality, since according to the situation of the game, the BGM² will change, and helps the player dive into the atmosphere and action. Besides, the sounds of weapons and other objects are very detailed and realistic and again, they help achieve a powerful immersive experience.



Figure 1: A deserted tennis court (Enix, 2012)

The theme of the gameplay in *Hitman: Absolution* is without a doubt one of its strengths. Control becomes very easy once the player gets familiar with how to select which objects and how to interact with the surroundings. Of course, tutorial sections are provided to teach the players how to use the controls so they only have to worry about their target and their choice

² Background Music

of how to complete a mission. As can be seen in Figure 2, the game has a teaching function in for example showing the player how to shoot.

Because the game is designed to deliver high doses of replay value and challenge to no end, the work of IO Interactive (the developer company) is divided into two types of proposal: normal and professional. In the first there are the easy and normal difficulties with their specific particularities. The best way to start the game for a first-time player is presented.



Figure 2: Shooting tutorial (Enix, 2012)

Once all levels are completed and the players are acquainted with the how the game works, they can move to the Professional mode, which offers a new dimension to the game. This presents *Hitman* in real-life as a hard character who is expert in his field to as a "purist" and a key element of experience designed to challenge the player. At this point the game becomes more challenging since there are no more interface guides or aids.

As far as the game mechanics go, the title is far superior to that of past deliveries. *Absolution*, for example, works much better as a shooter than in the previous title, *Blood Money*, and the main character is much more agile and versatile in this game, and able to do a lot more in the role of an assassin. It provides a wider range of ways to run each scene and based on the players' choice. All the classic tricks of the *Hitman* series are deployed, such as hiding in containers, and hiding bodies (as shown in Figure 3), throwing objects to make a noise to distract the enemy, getting disguised and going unnoticed by the authorities or studying the routine movement of enemies to catch them out. There is relatively no need to add further description since there are no other major changes, nevertheless it should not be overlooked that the issue of disguises has been substantially altered. In the past if players appeared dressed in some appropriate attire they were not concerned about being unmasked by the enemy. However, in this new title the game is designed such that their cover is blown more easily, even with the slightest suspicious movement.



Figure 3: Hiding a body in the closet (Enix, 2012)

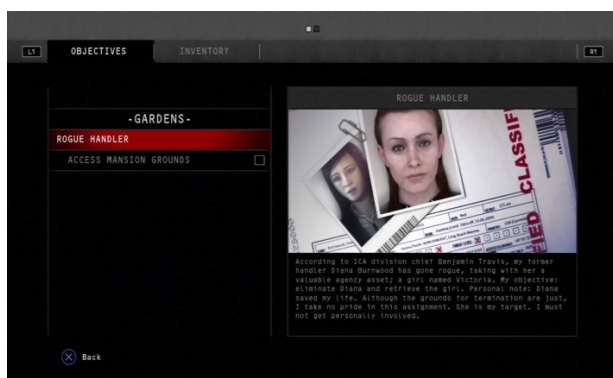


Figure 4: First mission's objective (Enix, 2012)

A strength of the game is that the objectives are very clear and explained in English by the game itself in each mission. This is exemplified in Figure 4. Whether the player acts silently or in a loud and heedless manner is the actual choice of that player. But, eapoint of the objectives must be followed or else the mission becomes a failure. Bowden (2011, p. 57) sates: "Missions begin with briefings and snippets of intel to point you in a few directions. Each contracted kill is a puzzle — an open-ended one with countless correct solutions". This is a major point in encouraging the players to learn the language of the instructions that are given to them by the game, in the case of this research - English.

Overall the *Hitman* series has always been praised by a major part of the gaming community and has sprung its own fan culture with very eager gamers discussing the series, creating mods and various artworks over the years. In conclusion, the return of *Hitman* series could not have been better, with a complex title like *Hitman: Absolution*, a game replayable over and over again and full of options in addressing the levels that will delight all fans of Agent 47. It can be safely claimed that this game is one further evolution versus previous deliveries, involving a more interesting story, a better dubbing and a better sound system. In addition, its slow and leisurely pace does not make it a game suitable for everyone. But the overall the quality is so high that when we jump into the shoes of this charismatic assassin, the experience will be unrivalled. *Hitman: Absolution* delivers what it promises. It takes the best of the four previous action adventures and gives more freedom to the player and more alternatives to address situations, and wraps it's the story in a plot worthy of a Hollywood movie, well supported by remarkable graphics and acceptable AI. Therefore, it is safe to say that *Hitman: Absolution* is one of the most refined titles the gaming industry. As properly pointed by Hadyn Green ". . . it's an excellent game with an almost Grindhouse film aesthetic to it . . . The amazing imagery and huge crowd scenes - which are frankly amazing and make Assassin's Creed's look dull - give the game a real filmic feeling to it. And remember, you don't have to kill everyone" (New Zealand Gamer Review, 2017).

Figure 5 shows a creative fan made wallpaper which demonstrates how devoted the fan community surrounding the franchise is and how much time and effort they put into promoting their favourite video game, in which case it is appropriate to call it an artistic product.



Figure 5: Fan made wallpaper (Enix, 2012)

METHODOLOGY

The researchers endeavoured to shed light upon whether playing video games benefitted EFL language learners. The data collection comprised the conduct of interviews to engage the students in conversations regarding their views of the impact of video games upon the extension of their vocabulary. The researchers' intent was to conduct preliminary research to explore views of students who were well experienced with video games as a springboard for further studies in the area. As a stimulus for the research they were asked to play the specific game, *Hitman Absolution* (2012) prior to participating in the interview.

Sample Selection

A small sample of seven Iranian EFL language learners was selected purposively, on the criteria that they were learning EFL, had extensive experience playing video games and their English language proficiency levels were known. The participants were all male and their proficiency levels, according to the Oxford Placement Test (2007), ranged from elementary to advance level. Their age ranged from 18 to 26.

Interview Schedule

A structured interview schedule was designed and administered individually to each language learner to explore their opinion as to whether their frequent experience playing video games played any role in expanding their repertoire of vocabulary knowledge or not.

Data Analysis

The researchers classified the perception of students into different themes, so that based upon different traits of video games; the facilitating influence of video game was able to be uncovered. The themes were, respectively, video games as a story-based game, video games as an audio-visual apparatus, video games as motivation, video games as an optimal participation, and video games and implicit learning. The duration of each interview was approximately 60 minutes and participants had the opportunity to refer to specific games if they wished. Subsequently, interview data were analysed for common themes.

Theme 1

Video games as a story-based game

The first theme that emerged was the students' awareness that video games are mostly story-based such that from the perspective of language learning and understanding the material is well organized in a sequential way. In this regard Student Three (S3) noted:

In my experience, video games are story-based; players should play the role of a particular person, and they proceed through the story in accordance to the game's story. The relationship between each stage of games is organized and in chained manner, which aids players influentially to remember the material for a longer period of time. (S3)

In addition, from the students' perspective, video games were seen as able to make a link with a player's prior experience in the early stages of the video game and creating continuity through subsequent levels. In this way, players were seen as being able to integrate new material/vocabulary as it arose with their previous experience. Accordingly, by recalling established material, new experience and the vocabulary associated with it can also be recalled. In this regard Student Four (S4) claimed that:

There is a reasonable relevance between various stages of video games. In other words, players can establish a rapport between their prior knowledge and their new information and vocabulary use in different levels of a given game. Thereby, the related new knowledge and concepts can be remembered more easily and quickly. (S4)

On the basis of these descriptions of experience suggest that because vocabularies in video games are organized in a logical and meaning related manner students see them as being able to be learnt and then recalled more easily.

Theme 2

Video games as an audio-visual apparatus

The second emerging theme deepens the ideas from the first theme as it shows that in the students' views, video games are considered a superior tool for not only learning new concepts and vocabulary but also for assisting them to remember them. In effect, supporting the idea that players can benefit from a more multisensory approach in that they are relying on both their auditory and visual memory. Moreover, it was reported that they gained a better learning experience because the learning was addressed within the stimulating environment of playing a game. This is illustrated in the response from Student Two (S2) who maintained:

The intriguing atmosphere of video game can motivate players to engage in learning new material. Besides, they can learn new material through both their visual memory along with their auditory one. (S2)

What is more, students raised the fact that since video games are in different genres they enable the players to be exposed to different contexts and vocabulary sets. On this basis, regular players need to come to grips with a variety of vocabularies across the different genres in order to accomplish their goal within each game. This is reinforced in the response by Student Three (S3) who noted that:

In the market, different genres of games can be found and each of these genres have their own input, language and vocabulary. In my experience, each of these games can help players to learn lots of vocabularies. (S3)

Theme 3

Video games as a motivation

A third theme raised the issue of motivation. There was a positive preoccupation regarding the game itself in the students' views. Being involved in the game itself was argued to be replete with different ways of motivating the player and related to both intrinsic and

extrinsic motivation. It was clear that central to a game was that the more motivated the player was the better their achievement. For example, Student Four (S4) expressed the view that:

I always have had a positive perspective towards video games; actually before entering into games I always had an intrinsic motivation, and I was ablaze with enthusiasm. After accomplishing a particular level of video games, players can attain different prizes, which can enhance their extrinsic motivation. Simply put, video games cater for anticipation of rewards for their players. (S4)

In keeping with the fact that it is very well established that learning a new language successfully necessitates a considerable amount of motivation, the students experience with video games in this regard provides important feedback to the field. In addition, the idea that the process of video game playing can shift the player's initial extrinsic motivation to being intrinsic highlights a strength that has the potential to contributing to transforming language learning. As reflected in Student One's (S1) response, as a language learner he shows his awareness of the role of extrinsic motivation and the challenge of achieving intrinsic motivation in language learning:

I believe that video game is full of both intrinsic and extrinsic motivation, which is a must for learning language successfully. Also, video games turn extrinsic motivation into intrinsic one. (S1)

Theme 4

Video games as an optimal participation

The fourth theme showed that in the view of language learners, video games are in line with flow theory (Csikszentmihalyi, 1991; O'Neill, 2015), which refers to the learning being rewarded and reinforced intrinsically when it provides the optimal situation for engagement and participation. In other words, the students' responses suggested that video games sustain players' enthusiasm (compared with the potential boredom associated with traditional methods of learning a language such as by rote and memorization and discrete skills (Dörnyei, 2009; Krashen, 2004; Sánchez, 2004), thus being able to entice players to try as much as possible to succeed e.g. in contrast being immersed in 'winning' the game. Within the following response it is also evident that players are also cognitively engaged. For instance, Student Five (S5) noted that:

In my opinion, video games can provide the best situation for engagement; sometimes the players of video games are engaged for hours and try to accomplish a certain phase of the game by using different tactics and strategies. (S5)

In addition, in terms of optimal participation in learning, students' responses reflected one of the most recent ways for improving language learning e.g. narrow listening and reading (Bryan, 2011), the influence of which can be felt tremendously in video games. In these learners' views, the repetition of a given task or instruction as found in needing to play a video game can enhance the possibility of learning new material for the repeated material especially vocabulary. In this regard, Student Three (S3) claimed that:

Sometimes video games provide a context in which learners should turn into a problem solver to resolve the issues. By the same token, by repetition of a given goal, players can improve their performance by taking advantage of various kinds of feedback either immediate feedback or delayed. (S3)

Thus, it seems that various sorts of feedback, but particularly the immediate ones, can enliven the hope among players and motivate them to try harder to accomplish a particular level/goal,

which again can reinforce narrow listening and reading among language learners. In this way, it seems the video game experience can ensure the language learner is engaged and tightly focused on the material that promotes the learning.

Theme 5

Video games as implicit – incidental learning

Ellis (2005) propounds that successful language learning comes about whenever students can benefit from both implicit learning as well as that which is explicit. He further expounds that successful learning should embrace predominantly implicit learning along with some inclusion of explicit. In the eyes of both language learners and teachers, video games mostly invoke substantial implicit learning (Bergstrom, Howard & Howard, 2011; Dekeyser, 2003), although to some degree they can involve explicit learning. The importance of such incidental learning, as well as explicit learning, with regards to learning vocabulary, is of paramount importance to the EFL learner. The implicit nature of the learning involved facilitates incidental learning, while the explicit learning relevant to playing video games relates to the explicit goals or objectives of the game. In this regard, Student One (S1) maintained that:

The objectives of video games can be perceived, either explicitly through the provided instruction of games as well as implicitly, through benefiting from trial and error during playing. S1

Additionally, incidental learning can be enhanced within language learners through the role-play and simulation involved in video games, a considerable amount of which can be observed in most video games.

Associated with the role also is the language and specific vocabulary. Student Seven (S7) explained:

As far as I experienced, most of the games included simulation and role-play, in terms of simulation, video games try to simulate a real-life story or a make believe one. Concerning role-play, players often play the role of a certain character in the process of the game. (S7)

DISCUSSION AND CONCLUSIONS

By referring to different themes of data analysis of this study, it can be concluded that video games have two main characteristics that can facilitate the process of vocabulary learning. The first is being story-based. Video games provide new material and associated vocabulary in a related manner. What is more, the story-based characteristics of video games are already organized, such that they can be more easily remembered by the player. The second theme refers to the audio-visual characteristic of video games, which aids language learners to benefit from both their auditory and visual memory for learning more vocabulary. In a parallel vein, language learners in their uptake of video games, can be stimulated owing to the intriguing environment created in the games. It can be inferred from the research that this can enhance their motivation and as a result increase their incidental language learning. The third phase of data analysis delves into the importance of motivation for learning language successfully. According to this phase of data analysis video games can provide a large amount of intrinsic motivation as well as extrinsic. Also, the playing of video games it is suggested that the initial extrinsic motivation can become intrinsic during play, which is believed to be the most effective circulation of motivation. Additionally, it suggests that when learners are sufficiently motivated they can absorb new material not only more quickly, but

more longitudinally. In the pen-ultimate phase of data analysis, it is suggested that video games can be an optimal tool for language learners' engagement and that this applied to the EFL students involved in this research whether they were at the elementary English proficiency level or advanced. Based upon the provided information in this phase, it is suggested that during the playing of video games EFL learners can engage at a sufficiently deep level to experience flow (Csikszentimihalyi, 1991; O'Neill, 2016), since being absorbed in the game can provide an optimal situation for their engagement and participation. In addition, in keeping with the theory of narrow listening and reading video game playing can enhance students' chances of learning new material especially vocabulary for a longer period of time by repeating a given task for several times. It is noted though that this occurs when a student's attention is involved in playing a game as opposed to the monotony of rote learning and the like. Moreover, in the final phase of data analysis, the implicitness and explicitness of students' learning through video games arose. By referring to this phase of data analysis it can be inferred that language learners benefit substantially from incidental learning e.g. learning that is implicit as they carry out their engagement with the game. Also of note is that the nature of video games as a resource for developing vocabulary in language learning may also involve students in explicit learning but mainly in terms of being able to articulate the purpose of the game or role of the player in being able to accomplish a particular level of the game. Thus, particularly, players can be more successful in developing their language learning by benefiting from some dominances of implicit learning over the explicit.

With respect to meaningful learning and the psychology of learning, since simulation and role-play are central to the experience of playing video games then it is not surprising that these students found them to be one of the best ways for incidental learning, and moreover a key strategy for the incidental learning of the vocabularies involved. On this basis the research provided critical insights into how EFL language learners perceive their experience playing video games as a potential resource for developing their vocabulary. However, it is acknowledged that there are limitations to this study but as exploratory research these findings suggest that it would be very worthwhile to conduct a larger study that is designed to measure the actual development of vocabulary based on the playing of video games over a set period of time. This would be intended to provide evidence of vocabulary learning and also an analysis of the game playing process and the language involved through case study would provide insights in the potential for future games to be designed more specifically to enhance vocabulary development.

Acknowledgments

We would like to acknowledge the students who generously gave their time to be involved in the research.

Address for correspondence: Ali Soyooof, School of Foreign Language Studies, Islamic Azad University, Shiraz, Iran. Email: <alisoyooof@gmail.com>

REFERENCES

- Ausubel, D. P. (2000). *The acquisition and retention of knowledge: A cognitive view* (1st. ed.). Dordrecht: Springer-Science+Business Media, B. V.
- Ausubel, D. P., Novak, J. D., & Hanesian, H. (1978). *Educational psychology: A cognitive view* (2nd. ed.). United States: Holt, Rinehart and Winston, Inc.

- Ausubel, D. P. (1978). In defense of advance organizers: A reply to the critics. *Review of Educational research*, 48(2), 251-257.
- Barnes, S., & Prescott, J. (2018). Empirical evidence for the outcomes of therapeutic video games for adolescents with anxiety disorders: Systematic Review. *JMIR serious games*, 6(1). e3. DOI:10.2196/games.9530.
- Bergstrom, J. C. R., Howard, J. H., & Howard, D. V. (2011). Enhanced implicit sequence learning in college-age video game players. *Applied, Cognitive Psychology*. 1-6. DOI: 10.1002/acp.1800
- Bowden, S. (2011). *100 Computer games to play before you die*. London: John Blake Publishing.
- Brett, P. (2001, June). *Too many media in my multimedia? A study of the effects of combinations of media on a recall task*. Paper presented at Escuela Superior de Administracion y Direccion de Empresas, Barcelona, Spain.
- Brown, H. D. (2007). *Teaching by principles: An interactive approach to language pedagogy*. Pearson Education.
- Bruner, J. S., & Bruner, J. S. (2009). *Actual minds, possible worlds*. Harvard University Press.
- Bruner, J. S. (1966). *Towards a theory of instruction* (Vol. 59). Harvard University Press.
- Bryan, S. (2011). Extensive reading, narrow reading and second language learners: Implications for libraries. *The Australian Library Journal*, 60(2), 113-122. DOI: 10.1080/00049670.2011.10722583
- Csikszentimihalyi, M. (1991). *Flow: The psychology of optimal experience*. New York: Harper Collins.
- DeHaan, J. (2005). Learning language through video games: A theoretical framework, an analysis of game genres and questions for future research. In S. Schaffer & M. Price (Eds.), *Interactive convergence: Critical issues in multimedia* (vol. 10), (Chapter 14, pp. 229–239). Oxford, UK: Interdisciplinary Press.
- DeKeyser, R. (2003). Implicit and explicit learning. In C. Doughty & M. Long (Eds.). *The handbook of second language acquisition* (pp. 313-348). Cornwall: Blackwell Publishing Ltd.
- Dörnyei, Z. (2009). The 2010s. Communicative language teaching in the 21st century: The ‘principled communicative approach’. *Perspectives*, 36(2), 33–43.
- Ellis, R. (2005). Principles of instructed language learning. *System*, 33(2), 209-224.
- Enix, S. (2012). *Hitman: Absolution, Xbox 360 videogame*. London: IO interactive. Retrieved from <http://eu.square-enix.com/en/games/hitman-absolution>
- Esposito, N. (2005). A short and simple definition of what a video game is. *Proceedings of DiGRA 2005 Conference: Changing Views – Worlds in Play*. British Columbia: Digital Games Research Association, DiGRA.
- Fedzechkina, M., Jaeger, T. F., & Newport, E. L. (2012). Language learners restructure their input to facilitate efficient communication. *Proc. Natl. Acad. Sci.*, 109(44), 17897-17902. DOI: [10.1073/pnas.1215776109](https://doi.org/10.1073/pnas.1215776109)
- Green, C. S., Kattner, F., Eichenbaum, A., Bediou, B., Adams, D. M., Mayer, R. E., & Bavelier, D. (2017). Playing some video games but not others is related to cognitive abilities: A critique of Unsworth et al. (2015). *Psychological science*, 28(5), 679-682.
- Greitemeyer, T. (2018). The spreading impact of playing violent video games on aggression. *Computers in Human Behavior*, 80, 216-219.
- Hudson Kam, C. L., & Newport, E. L. (2009). Getting it right by getting it wrong: when learners change languages. *Cognit. Psychol.*, 59(1), 30–66. [[PMC free article](#)] [[PubMed](#)]

- Kharkhurin, A. V. (2017). Language mediated concepts activation in bilingual memory facilitates cognitive flexibility. *Front. Psychol*, 8, 1067
DOI: [10.3389/fpsyg.2017.01067](https://doi.org/10.3389/fpsyg.2017.01067)
- Krashen, S. (2004). The case for narrow reading. *Language Magazine*, 3(5), 17-19.
<http://www.sdkrashen.com/articles/narrow/narrow.pdf>
- Kühn, S., Kugler, D. T., Schmalen, K., Weichenberger, M., Witt, C., & Gallinat, J. (2018). Does playing violent video games cause aggression? A longitudinal intervention study. *Molecular psychiatry*, 1.
- Lai, H. P., Ho, E. N., & Warburton, D. (2017). Interactive video games are an effective supplementary to pediatric clinical exercise rehabilitation for cerebral palsy: Knowledge translation of video game-based therapy. *The Health & Fitness Journal of Canada*, 10(1), 17-22.
- Lawton, J. T., Saunders, R. A., & Muhs, P. (1980). Theories of Piaget, Bruner, and Ausubel: Explications and implications. *The Journal of Genetic Psychology*, 136(1), 121-136.
- Malik, S. A., & Wiseman, A. W. (2017). Revisiting and re-representing scaffolding: The two gradient model. *Cogent Education*, 4(1). DOI: [10.1080/2331186X.2017.1331533](https://doi.org/10.1080/2331186X.2017.1331533)
- McLeod, G. (2003). Learning theory and instructional design. *Learning Matters*, 2, 35-43.
- Mitchell, R., & Myles, F. (2004). *Second language learning theories*. Arnold Publishers.
- Mohammadi, M., Moenikia, M., & Zahed-Babelan, A. (2010). The role of advance organizer on English language learning as a second language. *Procedia- Social and Behavioral Sciences*, 2(2), 4667-4671. DOI:10.1016/j.sbspro.2010.03.747
- Nuthall, G. (2013). Understanding student thinking and learning in the classroom. In B. J. Biddle, T. L. Good & I. Goodson (Eds.). *International handbook of teachers and teaching* (pp. 681-768). Dordrecht: Springer-Science+Business Media, B. V.
- New Zealand Gamer Review. (2017). <https://www.gpforums.co.nz/threads/522683-NZGamer-com-to-Close>
- Olson, M. H., & Hergenhahn, B. R. (2009). *An introduction to theories of learning*. Upper Saddle River, NJ: Pearson/Prentice Hall.
- O'Neill, S. (2016). Educational growth and the semiotics of the tree: Exploring the OAK as a framework for deep learning. In F. V. Tochon (Ed.), *Deep education in the disciplines and beyond*, (pp. 43-69). Blue Mounds, WI: Deep University Press
- O'Malley, J. M., Chamot, A. U., & Walker, C. (1987). Learning strategy applications with students of English as a second language. *TESOL Quarterly*, 19, 285-296.
- Ormrod, J. E., & Davis, K. M. (2004). *Human learning*. Merrill.
- Palaus, M., Marron, E. M., Viejo-Sobera, R., & Redolar-Ripoll, D. (2017). Neural basis of video gaming: A systematic review. *Frontiers in human neuroscience*, 11, 248.
- Pearce, C. (2004). Towards a game theory of game. In N. Wardrip-Fruin & P. Harrigan (Eds.), *First person: New media as story, performance and game* (pp.143-153). Cambridge, MA: MIT Press.
- Pellouchoud, E., Smith, M. E., McEvoy, L., & Gevins, A. (1999). Mental effort-related EEG modulation during video-game play: Comparison between juvenile subjects with epilepsy and normal control subjects. *Epilepsia*, 40(s4), 38-43.
- Piaget, J. (1969). *The mechanisms of perception*. New York: Basic Books.
- Reed, M. W., & Kuwada, K. (2010). The effect of interactivity with a music video game on second language vocabulary recall. *About Language Learning & Technology*, 74.
- Rumelhart, D. E., & Norman, D. A. (1978). Accretion, tuning and restructuring: Three models of learning. In J. Cotton & R. Klatzky (Eds.), *Semantic factors in cognition* (pp. 37-53). Hillsdale, NJ: Erlbaum.
- Sánchez, A. (2003). The task-based approach in language teaching. *International Journal of English Studies*, 4(1), 39-71.

- Soyooof, A., & Jokar, M. (2014). Video game: A way to reduce inhibition and enhance language achievement. *Procedia-Social and Behavioral Sciences*, 98, 1850-1858.
- Soyooof, A., & Sedighi, Z. (2013). Video game: A new trend for fostering automaticity. In *Conference proceedings. ICT for language learning* (p. 120). Libreriauniversitaria. it Edizioni.
- Soyooof, A., & Talei, M. (2013). Video game: A fresh orientation for forging better gamblers. In *Conference proceedings. ICT for language learning* (p. 116). Libreriauniversitaria. it Edizioni.
- Tochon, F. V. (2014). *Help them learn a language deeply - Francois Victor Tochon's Deep Approach to world languages and cultures*. Blue Mounds, WI: Deep University Press.
- Valerio, K. (2012). Intrinsic motivation in the classroom. *Journal of Student Engagement: Education Matters*, 2(1), 30-35. Retrieved from <http://ro.uow.edu.au/jseem/vol2/iss1/6>
- Wolf, M. J. P. (2012). *Encyclopedia of videogames: The culture, technology and art of gaming*. Santa Barbara, Cal: Greenwood.
- Yang, C. T. Y., & Cheng, H. H. J. (2012). Learners' perceptions of a commercial adventure video game for learning English as a Second/Foreign Language. In *Proceedings of the 20th International Conference on Computers in Education ICCE*.

Video games

Qix, Taito America Corporation, 1981.

Tetris, Alexey Pazhitnov, 1985.