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Entitled

Investigating the Influence of Computer Role-playing Games on EFL Students' Incidental Vocabulary Acquisition

The Case of EFL Master Students at Mohamed Kheider University of Biskra

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Dissertation Submitted to the Department of Foreign Languages as Partial Fulfillment of the Requirements for the Degree of Master in Sciences of Language

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Declaration

I, **Imen AGGOUNE,** do hereby declare that this submitted work is my original work and has not previously been submitted for any institution or university for a degree. I also declare that a list of references is provided forward indicating all the sources of the cited and quoted information. This work was certified and completed at Mohammed KHEIDER University of Biskra.

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Dedication

"In the Name of Allah, the Most Gracious, the Most Merciful"

All praises and thanks be to Him, the Almighty, Who has granted me countless blessings, knowledge, and opportunities, so that I have been finally able to accomplish the current thesis.

I would like to dedicate this work to:

My father, my mother, and my sisters, the dearest persons to my heart.

Thank you for all your sacrifices, your encouragement, and all love and support.

My family, friends, and teachers.

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Abstract

Vocabulary knowledge plays an essential role in second/foreign language learning and mastering. On the light of vocabulary importance, the present dissertation attempts to investigate the effect of computer role-playing games on the incidental learning of target language vocabulary. In this regard, one main research hypothesis has been put forward that playing computer role-playing games helps EFL students at Biskra University to learn vocabulary incidentally. For the sake of collecting relevant data to test the research hypothesis, a mixed-methods approach was opted for. Qualitative and quantitative data were deduced from the results of a students' questionnaire and a focus group discussion. Hence, on the basis of the results, the research hypothesis was confirmed in that computer role-playing games actually meet the requirements for an English language student to incidentally learn new English vocabulary while enjoying a pleasant, entertaining activity. Therefore, it is recommended for EFL students/learners and teachers (especially those who are interested in video gaming) to give more attention to conventional video games and acknowledge that they have the potential to be used as an informal technique/method to learn the English language and enrich vocabulary knowledge.

Keywords: Role-playing video games, video gaming, incidental vocabulary acquisition.

List of Abbreviations and Acronyms

%: Percentage

AI: Artificial Intelligence

ARPG: Japanese Role-Playing Game

CALL: Computer Assisted Language Learning

CD: Compact Disc

COVID-19: Corona Virus Disease of 2019

CRPG: Computer Role-Playing Game

DGBL: Digital Game Based Learning

EFL: English as a Foreign Language

ESL: English as a Second Language

FL: Foreign Language

ICT: Information and Communication Technology

JRPG: Japanese Role-Playing Game

L2: Second Language

MCQ: Multiple-Choice Question

NPC: Non-Player Character

P: Participant

Q: Question

RPG: Role-Playing Game

SPSS: Statistical Package for Social Sciences

TRPG : Tactical Role-Playing Game

TSR: Tactical Studies Rules

WRPG: Western Role-Playing Game

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General Introduction

Vocabulary learning is hailed as a milestone in language learning, an indispensable, ceaseless activity, approached differently from one learner to another. Developing vocabulary knowledge facilitates language comprehension and production by enriching learners' integrated skills, such as listening, speaking, reading, and writing. Thus, it is the key to achieve proficiency and competence in the target language.

According to Nicholson (2012), vocabulary acquisition proved to be a challenging and quite diverse process. Despite the abundant studies conducted by applied linguists, psychologists, and theorists on foreign language vocabulary acquisition, there is still no generally accepted theory of vocabulary acquisition (Meara, 1997). Still, most linguists and EFL (English as a foreign language) teachers concur that vocabulary has to be learnt in its specific and relevant context. This sheds light on the input and the important role it plays in language and vocabulary leaning, which can be provided by the extensive exposure to the target language. Such environmental conditions ought to be met for the vocabulary acquisition to be effective.

Vocabulary can be either learnt intentionally or acquired incidentally. Unlike intentional vocabulary learning, where the learner specifically and directly aims to learn new vocabulary, incidental vocabulary acquisition is considered as a by-product of a random activity; i.e., the learner acquires new vocabulary unintentionally (Gass, 2001). Children acquire most, if not all, of their mother tongue vocabulary incidentally through reading and listening (Horst, Cobb, & Meara, 1998), which proved to be more natural and more straightforward than intentional vocabulary learning (Nation, 2013).

Review of the Literature

Regardless of the various adopted approaches to vocabulary acquisition, most linguists and EFL teachers concur that vocabulary has to be learnt in its specific and relevant

context. Such environmental conditions ought to be met for the vocabulary acquisition to effectively take place (Krashen, 1989). These conditions have become easy to fulfil with the advent of computer technologies, some of which are video games. The latter can provide extensive exposure of the language to EFL learners, and thus can promote incidental learning. To conclude, providing EFL learners with a convenient atmosphere that combines fun, target language input, feedback, and interaction, such as a video game, may not only help EFL learners acquire new vocabulary but also pave the way toward acquiring English language proficiency and competence.

A mixed-methods research, conducted by Neville, Shelton, and McInnis (2009), on German vocabulary acquisition concluded that even though the learners perceived the traditional methods and materials better and found it more relevant for learning objectives, those who were exposed to the video game performed better in vocabulary retention and transfer than those who used print-based materials. Based on their data analysis of English vocabulary test scores, they noticed that the group of frequent gamers (those who play video games more than ten hours per week) scored higher than both groups of infrequent gamers and non-gamers. This study refers to the ability of gamers to use their mnemonic/memory learning strategies to link one concept with another. That is, when gaming, EFL learners can unconsciously make associations between new and already known information (e.g., the learner can make an association between a new, unknown term and its picture in the game).

According to Hulstijn (2001), in the language acquisition domain, incidental vocabulary learning refers to acquiring random vocabulary as a by-product by listening, reading, or writing activities. Incidental vocabulary learning occurs when learners concentrate on performing one task (e.g., reading/listening) and coincidentally or unconsciously learn new vocabulary. Thus, in a gaming environment, vocabulary may be acquired as a by-product of playing the game through listening to in-game audio materials, reading written dialogues

and descriptions, or communicating with other gamers. However, this study might have missed the fact that the random/incidental acquisition of vocabulary may lead to unclear contextual information received and stored by EFL learners.

As was mentioned in the quasi-experimental study findings of Miller and Hegelheimer (2006), developing and applying game-based materials and integrating gameplay into formal instruction may help students enhance their vocabulary learning skills and facilitate the vocabulary learning process. Accordingly, they included the simulation game "The Sims" (Maxis, 2000) into an EFL teaching context, allowing students to play and complete the in-game tasks under three different conditions of access to supplemental/additional materials focusing on the in-game vocabulary: mandatory supplementary materials, voluntary supplementary materials, and no supplementary materials. The study results showed that the students could learn new vocabulary even without access to supplementary materials; that is, the students were able to learn new terms from their interaction with the game alone. Nevertheless, access to these materials had a positive impact on the vocabulary learning speed and effectiveness. This study puts forward the hypothesis that instruction-based platforms such as video games facilitate the vocabulary learning process for EFL learners. The significance of understanding the meaning of each vocabulary included in the in-game tasks may help students develop new strategies that can help them determine the contextual meaning of new, unfamiliar vocabularies.

Another type of video games was investigated by Rankin, Gold, and Gooch (2006) in a pilot study, in which they examined the impact of participation in the massive online multiplayer video game Ever Quest (Sony, 2004) on the foreign language (FL) learning of four EFL learners. The data collection tools that were used in this study are: observations, interviews, field notes, questionnaires, chat logs, and vocabulary tests. Study results showed that EFL learners noticed and internalized new FL discourse used by non-player-characters

(NPCs) —designed in-game characters/avatars controlled by computer programs and not by actual humans/gamers. The interactive feature of online video games allows gamers to communicate with others and with NPCs/bots, and thus, they can distinguish between the language (in this case, English) used by bots and the language used by actual humans in the game. Also, this type of games enables gamers to communicate with native speakers, allowing them to acquire new vocabularies and their various meanings in the relevant context of the game. This study might have missed the fact that English, as a lingua-franca, is the most used language in online multiplayer videogames. That is, in a global online platform, almost all games are required to speak and chat in English, which helps students learn new vocabulary while gaming.

Research Hypothesis

H$_1$: Playing Computer role-playing games can help EFL students to acquire new vocabulary incidentally.

Research Questions

The present study focuses on answering three main questions:

1. Can EFL students use computer role-playing games to learn vocabulary incidentally?

2. Can learners use in-game context clues to figure out the meanings of unknown vocabulary?

3. Are learners able to use the vocabulary they learn through video games in formal and informal contexts?

Research Aims

- **General Aim:**

The general aim of this research is to survey the influence of computer role-playing games on EFL learners' incidental vocabulary acquisition.

- **Specific Objectives:**

This research specifically aims to:

1. Gain an understanding of the positive impact of computer role-playing games on the incidental acquisition of English vocabulary.

2. Determine the game characteristics that lead to incidental vocabulary acquisition (fun, interaction, autonomy, game instructions, game feedback, audio-visual content...).

3. explore how gamers can acquire vocabulary through Computer role-playing games.

Significance of the Study

Given the importance of vocabulary knowledge in language learning, this study focuses on the core issue of vocabulary insufficiency faced by EFL learners. That is, it attempts to guide EFL learners through the shortcuts to acquiring vocabulary, introducing a new approach from a completely uncommon, innovative angle. Specifically, it puts forward the use of role-playing video games in EFL context as an arguably effective tool to foster the vocabulary learning and acquisition process. thus, it underlines practical instructions for EFL learners to adjust role-playing video games to function as a vocabulary acquisition device. This study also serves as a guide, a source, and a relevant material for future studies.

Research Methodology

- **Research Method**

In order to explore the influence of playing computer role-playing video games on EFL students, the researcher adopted a mixed-methods approach to collect the required data for this dissertation. In this process, the researcher plans to obtain information from any material that is valid and relevant to their field of interest. Consequently, an evaluative analysis of the theoretical and the field work was carried to determine the workability of the suggested solution in real situations. Given that the suggested solution to the previously-mentioned problem is unorthodox and novel to the Algerian academic community, a descriptive design was followed in this dissertation. Qualitative and quantitative data are

collected and interpreted to establish a correlation between playing computer role-playing games and learners' incidental vocabulary acquisition.

- **Population and Sample**

    This study targets Master students at Mohamed Kheider University of Biskra. The sample was drawn from Master-one and Master-two students. It collectively consists of 42 students. Given that Master students are able to perceive basic grammar rules, it is convenient for them to start giving more attention to vocabulary learning and development, as it will be one tool to achieve academic success and thrive during the following years.

Dissertation Structure

    The present study comprises three chapters: two theoretical and one practical. Chapter one revolves around vocabulary learning, incidental vocabulary acquisition, and vocabulary retention, as well as how it is viewed from different theoretical standpoints. It entails a discussion on how vocabulary is learnt and retained from a pedagogical perspective, highlighting its importance in language learning, types, learning theories, learning strategies, and assessment. Chapter two sheds light on video games, their types and characteristics, and the elements that can facilitate vocabulary acquisition and, thus, language learning. It also discusses some of the existing taxonomies of games and the impact of video gaming on education and learning, focusing mainly on its contribution to language learning. Finally, chapter three is divided into two sections. Section one presents the data analysis and interpretation of the students' questionnaire. Section two presents the data analysis and interpretation of the raw data collected through the focus group.

Research Limitations

Several potential limitations influenced the results of this research. Due to the current COVID-19 pandemic state in Algeria and the safety measures and precautions instructed by the university administration, the focus group was held online, and no actual face-to-face

meetings were allowed. The size of the sample was limited. Another limitation was the Algerian teachers and students' unfamiliarity with the novel video gaming concept and its relation to language instruction. Time constraint was yet another limitation of this research; due to this limitation, the descriptive design was opted for in this study instead of the experimental.

CHAPTER ONE: Incidental Vocabulary Acquisition

Contents

Introduction

Words are the tools to express thoughts, understand others, and share knowledge. Therefore, collecting as many words as possible is one of the main objectives that language learners aim to reach throughout their language learning process. Nation (2008) considers vocabulary a means to enhance the four skills of reading, writing, listening, and speaking. Despite the significant role vocabulary knowledge plays in language learning, it has been neglected for a long time compared to other areas of language. The importance of vocabulary acquisition for second/foreign language learners has only been pointed to during the past few decades (Laufer, 1986; Nation 1990) as it was considered something of a "poor relation" by linguists and language teachers (Maiguashca, 1993).

There are various ways to go about acquiring new words. One common method is through direct instruction, such as in a classroom setting where a teacher explicitly teaches new vocabulary. However, incidental vocabulary acquisition (or learning words indirectly through exposure to them in context) can also be extremely effective. Nevertheless, and in spite of the recently aroused interest in vocabulary development and the increasing amount of conducted empirical research on vocabulary acquisition, many aspects of this area are still unknown; there is no clear concept on how and when vocabulary acquisition takes place, how context contributes in vocabulary acquisition, and how students develop strategies to learn new vocabulary (Lawson & Hogben 1996), as well as how vocabulary can be acquired incidentally.

These issues have to be addressed by applied linguists and language teachers in an attempt to break down problems such as vocabulary insufficiency, vocabulary loss, and vocabulary acquisition and reach workable solutions that can facilitate vocabulary development, which, in turn, can pave the way towards mastering the language.

1.1. Defining Vocabulary

Vocabulary is defined, according to Hornby (2006, p. 1645), as "all the words that a person knows or uses and it is all the words in a particular language." This definition covers vocabulary from three distinct angles. First, vocabulary, according to an individual, is all the words that he/she knows (i.e., the collection of words he/she acquired). Second, vocabulary can be all the words used in a text or speech. Third, from a linguistic perspective, vocabulary is a set that comprise each and every word in a language. Ur (1998), points out an important distinction between a "word" and a vocabulary "item" has to be pointed to. He states that vocabulary is defined as the words that are taught in the foreign language. A new item of vocabulary is not always a single word; it can be a combination of two or three words that convey a single meaning, such as, ice cream, father-in-law, and sunflower. Harmer (1991) introduces an interesting analogy where he compares language to the human body, saying: "if language structures make up the skeleton of a language, the vocabulary provides the flesh and the vital organs." (p.153). Vocabulary is what gives grammar meaning; without vocabulary, grammar is a meaningless hollow structure. Hence, learning grammar alone will not lead to mastering L2 or the foreign language.

In essence, vocabulary is all the words that carry meaning in a language, the knowledge of words associated with their different meanings and uses, and the words we need to understand to communicate effectively. Moreover, unlike the finite set of grammar rules, there is no complete set of a language vocabulary, for it is continuously expanding as stated by Grauberg (1997):

> The rules of grammar and the patterns of pronunciation are relatively few
> and the total is finite, … The third level, vocabulary, is open, containing a
> large number of words for productive use, another large number for

receptive use and a further number which varies with the interests and

occupation of individual speakers (p. 02)

Vocabulary reflects how individuals perceive the world. Therefore, learning second/foreign language vocabulary has to be contextualised. Understanding how people view their surroundings and why they describe certain objects, concepts, individuals using certain language forms can facilitate language learning and foster the vocabulary acquisition process, especially for EFL and ESL learners.

1.1.1. Aspects of Vocabulary and Word Knowledge

A word is generally viewed as a two-dimensional linguistic entity, meaning that if someone wants to learn a word, he/she needs to know two things: its form and its content. The form includes what the word looks like (spelling) and what a word sounds like (pronunciation). The content refers to what the word means (meaning), and this is what language learners often focus on. In some cases, this is enough for someone to learn and start using the word in different contexts. However, some words, such as technical vocabulary and high-tier vocabulary needs a deep investigation and a thorough knowledge before one can say that they learned such a word. In this regard, Nation (2001) introduces a third dimension (i.e., use) to the two previous ones, providing further details pertaining to the aspects of language. In addition, according to the Lexical Quality Hypothesis, there are five word "features": meaning (semantic representation), pronunciation (phonological representation), spelling (orthographic representation), morphology (recognized morphemes), and syntax (grammatical function) (Perfetti, 2007).

Form	Spoken	R	What does the word sound like?
		P	How is the word pronounced?
	Written	R	What does the word look like?
		P	How is the word written and spelled?
	Word Parts	R	What parts are recognizable in this word?
		P	What words parts are needed to express the meaning?
Meaning	Form and meaning	R	What meaning does this word form signal?
		P	What word form can be used to express this meaning?
	Concepts and Referents	R	What is included in the concept?
		P	What items can the concept refer to?
	Associations	R	What other words does this word make us think of?
		P	What other words could we use instead of this one?
Use	Grammatical functions	R	In what patterns does the word occur?
		P	In what patterns must we use this word?
	Collocations	R	What words or types of words occur with this one?
		P	What words or types of words must we use with this one?
	Constraints on use	R	Where, when and how often would we expect to meet this word?
		P	Where, when and how often can we use this word?

Note: R = receptive knowledge, P = productive knowledge.

Table 1.1: **The Elements of Lexical Knowledge (Nation, 2001, p. 27)**

1.1.2. Types of Vocabulary

English, like many other languages, has a great amount of vocabulary. Apparently, with the constant emergence of new areas of knowledge in various fields and domains, vocabulary is incessantly changing and increasing. New concepts, ideas, and discoveries necessitate the invention of new words or the derivation from existing ones. Nevertheless, not all words in a language can be listed under one category or class; instead, vocabulary is categorised and classified according to different criteria.

1.1.2.1.   Oral Vocabulary and Print Vocabulary

According to Heibert and Kamile (2005), vocabulary comes in two forms: oral and print. "Oral vocabulary is the set of words for which we know the meanings when we speak or read orally. Print vocabulary consists of those words for which the meaning is known when we write or read silently." (p. 3)

1.1.2.2.   Receptive Vocabulary and Productive Vocabulary

Nation (1994) and Al-Dagel (2009) brings forth yet another distinction, dividing vocabulary into two categories: Receptive (passive) and productive (active/expressive). Receptive vocabulary are the words that the learner understands when hearing or seeing (Hanson & Pauda, 2011, p.05). It includes two subcategories:

1.1.2.3.   Listening Vocabulary

From a very young age, children start to listen to and understand words; they continue to learn new words from hearing all their lives incidentally. By the time they reach adulthood, most people will be able to recognize and understand around fifty thousand words (Stahl, 1999; Tompkins, 2005).

1.1.2.4. *Reading Vocabulary*

People learn a large number of their vocabulary from reading only. People can recognize, read, and understand many words that they may not necessarily feel comfortable to produce.

On the other hand, productive vocabulary is the set of words the learner uses in their writing or speech (Heibert & Kamile, 2005, p. 05), which in turn consists of two subcategories:

1.1.2.5. *Speaking Vocabulary*

The speaking vocabulary, unlike listening vocabulary, is relatively limited. When using this type of vocabulary, the speaker can rely on other communicative elements, such as: body language (gestures, facial expressions), pitch, and intonation, which makes it easier to use.

1.1.2.6. *Writing Vocabulary*

It is the set of words people use to express their thoughts and ideas in writing. To demonstrate these ideas and thoughts, the writer needs to have the knowledge of each and every word he/she uses in terms of meaning, spelling, and use.
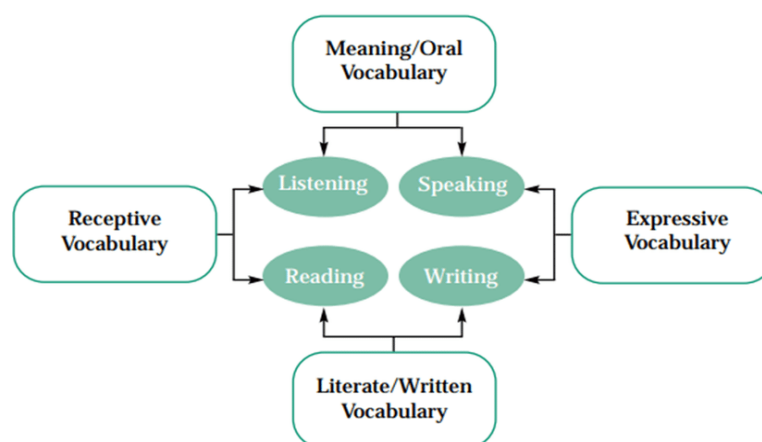
Figure 1.1. **Types of Vocabulary (Adapted from Pikulski, J. et al, 2004, p. 2)**

1.1.3. Kinds of Vocabulary

According to Hatch and Brown (1995, pp. 181-243), vocabulary comes in at least five kinds: word classes, word families, word formation, collocation, and homonyms.

- **Word Classes**

This kind of vocabulary according to the different parts of speech, including nouns, pronouns, verbs, adjectives, adverbs, prepositions, and conjunctions.

- **Word Families**

This category consists of word groups that share the same root. Adding affixation (prefix/suffix) to a root word may change the whole structure and meaning; however, it will still be part of the same word family. By learning one word, language learner can figure out the meanings of the rest of the words in the same family easily (or other parts of speech). Example:

  o Inflected: attract-attracted-attracting

  o Derivatives: attraction-attractive-attractively

- **Word Formation**

Word formation, or derivational morphology, refers to the ways in which new words are constructed (using already existing words or morphemes) to denote a state or a process. (Nordquist, 2020). There are 3 main types of word formatting:

  o Compounding (e.g., self-control, football, forefather…)

  o Blending (e.g., infotainment, emoticon, frenemy…)

  o Clipping (e.g., stereo/stereophonics, gas/gasoline, teen/teenager…)

- **Collocation**

O'Dell (2008) defines collocation as two or more words that are often used together. Specifically, collocation refers to the habitual and natural co-occurrence of words or group of words.

Example:

- o "Pay attention"

- o "Fast food"

- o "Heavy smoker"

- **Homonymy**

Homonymy is the relationship between words that are homonyms: Homographs and Homophones. Homographs are to the words that have the same form and structure but differ in meaning. On the other hand, homophones are the words that are pronounced the same but have different forms and meanings.

Example:

- o Spring: a season / a coiled metal

- o Rode / road: past tense of ride / street

1.1.4. Tiers of Vocabulary

When vocabulary is instructed directly, it has to be classified into tiers, as Beck, McKeown, and Kucan (2002) suggested. Tier 1 consists of basic words that are used in everyday speech and known by and familiar to most students (e.g., play, book, table, see, walk). Tier 2 comprises high-frequency words; i.e., academic, literary more advanced words, found in many content areas and across various fields (e.g., maintain, formulate, beneficial, restrict, commercial). Tier 3 is the less used/common set of vocabulary, a combination of low-frequency, domain-specific terminology (e.g., algebra, trigonometry, protagonist, monarchy, atom). The following table shows the distinction between these tiers:

	Tier 1	Tier 2	Tier 3
Descriptive	The most basic words	High-frequency words for mature language users	Low frequency, often limited to specific domains.
Examples	clock, happy, work	absurd, analyse, intricate	quark, electron, chromosome
Instruction	Rarely require instruction at school	Instruction geared toward these words can be most productive	Best learned when a specific need arises

Table 1.2. **Tiers of Vocabulary (according to Beck et al., 2002)**

1.2. The Importance of Vocabulary in Language learning

Vocabulary learning is essential for EFL learners to achieve academic success. Many researchers (e.g., Nation, 1999; Nation, 2011; Read 2009) concur that vocabulary knowledge can contribute to the development of EFL learners' integrated skills and communicative competence. According to Nation (2011), the acquisition of EFL vocabulary items affects both language comprehension (i.e., the ability to understand text and speech through listening and reading) and language production (i.e., the ability to produce comprehensible text or speech through reading and writing). Thus, the importance of vocabulary revolves around the four learning skills of reading, writing, listening, and speaking.

1.2.1. Vocabulary and Reading

Reading is one of the most fundamental activities in the academic career. Vocabulary knowledge plays an important role in the learner's reading comprehension. Without the required vocabulary knowledge, learners cannot read effectively, understand, and analyse ideas provided in texts. (Nagy, 1988)

1.2.2. Vocabulary and Writing

Writing, especially academic, relies basically on vocabulary knowledge. To communicate ideas and thoughts through writing, one should have the knowledge of all aspects of every and each word he/she uses (see Table 1.1). Learners have to be more careful with the multiple and complex meanings of words; through the choice of vocabulary, the reader can determine the tone, purpose, and attitude of the writer and thus can understand the message conveyed.

1.2.3. Vocabulary and Listening

Heibert and Kamil (2005) suggests that "comprehension is a function of oral language and word recognition" (p. 3). The spoken input is critical in language learning. Not all information provided in the classroom comes in written form. Therefore, vocabulary knowledge is essential for listening comprehension. As stated in Vidal (2011), learning through listening depends basically on learners' prior vocabulary knowledge. That is, without the necessary knowledge of the various meanings and uses of vocabulary, the learner might get confused and unable to grasp the message conveyed by the speaker.

1.2.4. Vocabulary and Speaking

Speaking is a speech production that is part of most people's daily activities. A well-developed vocabulary allows individuals to express themselves clearly and concisely, making them better equipped to engage in meaningful dialogue with others (Thornburry, 2004, as cited in Akhyak and Indramawan, 2013). Without adequate vocabulary knowledge, learners cannot express themselves sufficiently or share information successfully; they might even be misunderstood by others and cause confusion. (Adolphs & Schmitt, 2003).

An extensive lexical repertoire can enrich learners' integrated skills and aid them toward mastering the language. In an EFL context, like Algeria, the lack of vocabulary knowledge can beget various communication issues. However, although a robust vocabulary

collection can help EFL learners master the language, the vocabulary acquisition cannot take place without exposure to the target language (in this case: English). Therefore, there is a reciprocal relationship between acquiring vocabulary knowledge and enhancing the four essential language learning skills – namely, listening, speaking, reading, and writing. (Nation, 2011)

1.3. Incidental Vocabulary Learning

The process of learning becomes entertaining and less boring when learners are engaged in something they are interested in or want to accomplish. Communication is one of the first abilities children can acquire. Growing up surrounded by an interactive social environment, they can quickly learn their first language and gradually acquire more vocabulary. Therefore, language learning is most effective when occurs incidentally (Day, Omura, & Hiramatsu, 1991; Jenkins, Stein, & Wysocki, 1984; Nagy, Herman, & Anderson, 1985).

Incidental learning is the process by which one learns something new without the intention of doing so. This can occur when our attention wanders and a particular subject comes up; this can happen with any random information, and it is more common than people actually think because we often do not realize how much knowledge other things teach us until they are mentioned inadvertently or used as an example for something else. Hence, this random encounter with information leads to an accidental understanding or knowledge about that thing (Richards & Schmidt 2002).

Although many studies have revolved around L2 and foreign language acquisition in the past few decades (e.g., Boettcher, 1980; Carey, 1982; Clark, 1973; Dale, O'Rourke, & Bamman, 1971; Deighton, 1959; Eichholz & Barbe, 1961; Gentner, 1975), Nagy et al. (1985) is particularly significant. Their research concluded that multiple incidental encounters with a

word spread out over time, lead to accumulation of partial knowledge about the word, and eventually to full understanding.

1.3.1. Psychological Bases of Incidental Vocabulary Learning

Theories have tried to account for the specific way this type of acquisition takes place. However, it seems that it depends on the kind of cognitive process the learner is involved in when learning something new which can be different from their typical skillset- whether reading books about history or watching movies with subtitles, or playing video game). Laufer and Hulstijn (2001) put forth the idea of "involvement," "a motivational-cognitive construct which can explain and predict learners' success in the retention of hitherto unfamiliar words" (2001, p. 14). Involvement, therefore, refers to the three conditions that must be met for incidental word retention to occur: need, search, and evaluation. First, the need component of involvement is an instance where the learner must understand a word in order to derive meaning from the text. Second, search is the attempt to determine the meaning of an unknown word by understanding its context. Third, evaluation is the ability to determine whether the guess is false or correct either through translation or positive feedback. To conclude, Laufer and Hulstijn argue that learners who are motivated by a need to use the language will be more likely to search for input that is comprehensible and useful. Finally, they must be able to evaluate their progress in order to stay motivated.

1.3.2. Vocabulary Learning Strategies

In his book "Language Learning in a Digital Age," Nation (2000) claims that there are four aspects to a successful language learning strategy. First, learners must have a choice of strategies to choose from. Second, the strategy should be complex enough to require some effort to learn. Third, the strategy should benefit from training and knowledge. Fourth, the strategy should increase the efficiency of vocabulary learning and use. Nation's book provides a detailed look at how these four aspects can be implemented in the classroom.

There are a variety of strategies that can be used when faced with the task of determining the meaning of an unknown word. Perhaps the most obvious strategy is to consult a dictionary, either in print or online. However, this is not always possible or practical, especially if the individual is working with a limited amount of time or resources. In such cases, other strategies, such as analysing pictures or contextual clues, may be more effective.

Schmitt (2007) provides a comprehensive listing of vocabulary learning strategies, which he divides into five categories. The first category is focused on guessing the meaning of words from context, and includes strategies such as using word families and cognates, looking for affixes and morphemes, and using pictures and diagrams. The second category is focused on retrieving words from memory (associating words with images or stories), and includes strategies such as memorizing vocabulary through rote learning and using mnemonic devices. The third category is focused on elaborating on the meaning of words, and includes strategies such as creating examples and defining words in one's own words. The fourth category is focused on improving the storage of vocabulary in memory, and includes strategies such as exposure to vocabulary in multiple contexts and practicing. The fifth strategy is about matching new vocabulary with real-life situations or scenes.

According to Lawson and Hogben (1996), Incidental vocabulary learning strategies are those that do not require conscious effort or planning on the part of the learner. Instead, they are adopted naturally and spontaneously as a result of everyday exposure to the target language. While these activities may not seem like "learning" in the traditional sense, they can actually be some of the most effective ways to acquire new vocabulary. Because they are part of our everyday routine, they provide us with constant exposure to the target language, which gives us more opportunities to practice and learn new words and phrases.

Schmitt (2007) argues that all of these vocabulary learning strategies can be effective in helping learners to remember new words. However, the most effective strategy appears to be a combination of several different strategies.

1.3.3. Context Clues and Incidental Vocabulary Acquisition

Context clues are an important vocabulary-learning strategy for EFL learners (Carlo et al., 2004; Watanapokakul, 2006; Wilson, 2013). By definition, context clues are words or phrases in a text that provide clues about the meaning of unknown words. There are four main types of context clues: definition (a precise definition of the word, as in dictionaries), example (example of how, where, when the word is used), synonym/antonym (words that have the same or the opposite meaning of the unknown word), and inference (what concept the unknown word possibly refers to). EFL learners can use these context clues to figure out the meaning of difficult or unfamiliar words. (Kuhn & Stahl, 1998)

One way to learn vocabulary words is to break them down into smaller parts. For example, the word "metaphor" can be broken down into three parts: "meta," which means beyond; "phor," which means to carry; and "-or," which is a noun suffix. By breaking the word down into smaller parts that might be familiar or comprehensible, the learner can determine the meaning or at least get an approximate description or definition of what the word can possibly mean. (Lawson & Hogben, 1996)

1.4. Vocabulary Assessment

Assessing vocabulary knowledge is an important part of language instruction. There are a variety of ways to assess vocabulary, including oral and written tests, word-recognition tasks, and cloze procedures. Each type of assessment has its own advantages and disadvantages, so it is important to choose the method that best suits the needs of the students and the goals of the class. For example, oral tests are a good way to assess pronunciation and fluency, but they may not be as effective in assessing more subtle aspects of vocabulary

knowledge, such as understanding shades of meaning. Written tests, on the other hand, can provide more detailed information about students' vocabulary knowledge, but they may be less motivating for some students. Milton (2009) suggests that "some of the best-researched tests of vocabulary are checklist tests of passive vocabulary recognition, designed to give an estimate of vocabulary breadth or size" (p. 53). Ultimately, regardless of the chosen test type, the test ought to aim to measure two aspects about the learners' vocabulary: the depth and the breadth. (Bardakci, 2016)

     According to Bardakci (2016):

Vocabulary Depth refers to how well a learner knows the words and to what extent multiple aspects of a word are accessible to him/her, including form, content, and use (as shown in Table 1).

Vocabulary Breadth refers to the number of words that a learner knows in a particular subject area or field of study. For example, a medical student might have a deep vocabulary when it comes to terms related to anatomy and physiology.

1.5. Advantages to Acquiring New Vocabulary

     Vocabulary is an important part of language learning. By expanding your vocabulary, you can improve your ability to communicate in a foreign language. A good vocabulary also allows you to better understand the speaking and writing of others. Additionally, a robust vocabulary can be helpful in daily life, allowing you to more effectively communicate your needs and desires. Finally, expanding your vocabulary can be enjoyable in and of itself, providing a challenge that can help to keep you engaged in the language learning process. Thus, it is clear that there are many good reasons to focus on vocabulary development when learning a new language.

Conclusion

One of the most effective vocabulary-learning methods is incidental vocabulary acquisition. This approach should be Given more attention in EFL/ESL teaching contexts. Even a small amount of casual exposure can have a significant impact on vocabulary development. In addition, incidental vocabulary acquisition can help to build knowledge in a more natural and enjoyable way. It also makes it easier to understand others when they use unfamiliar words, and it can help learners learn new concepts more quickly. In addition, incidental vocabulary acquisition can also make learners more aware of the different ways that words can be used in different contexts. Overall, there are many advantages to acquiring new vocabulary in an incidental way. It is important to make sure that learners are given opportunities for both intentional and incidental vocabulary acquisition rather than focusing solely on direct explicit instruction of vocabulary.

CHAPTER TWO: Computer Role-playing Games in Language Learning

Contents

Introduction

The advent of computer technologies and the widespread of internet has revolutionized and brought radical changes to many areas and fields of education, one of which is language learning and teaching. In many cases, what was once considered revolutionary and original to this area eventually becomes commonplace. One of these technologies is video-gaming. Therefore, the appeal of this game genre lies in their ability to provide an immersive and engaging experience that can promote character and player development. Although most research on the educational use of CRPGs in language learning is still new and not fully explored in the Algerian context, there is a growing body of literature on the international use of this type of video games in education. This chapter provides an overview of the existing literature on the topic, inspecting the different categories of this type of video games, its characteristics, and its influence on EFL learners and their incidental vocabulary acquisition. It also looks at how immersive video-games can be used to support specific language education objectives, such as increasing vocabulary knowledge or developing language learning skills. Ultimately, the chapter argues that immersive can be a unique and effective tool for educational transformative change in language learning and vocabulary development.

2.1. The Distinction Between Serious and Conventional Video Games

Before one can discuss the effect of video games on EFL learners, a distinction between serious/educational and conventional/mainstream video games has to be drawn. According to Calvo-Ferrer (2018), serious games have a specific purpose of teaching content, rather than providing entertainment like conventional games. However, both types of games share the same principle: to provide fun and entertainment (Oliveira, et al.; González-González, & Blanco-Izquierdo, as cited in Piatrach, 2018).

Bellotti et al. (2013) suggest that all video-games are educational. However, serious games are purposely and exclusively designed to help the player learn through immersive gameplay, and often target specific knowledge or skills, while the play element remains secondary (Reinders, 2012). The use of this type of video games in the classroom is not new (see Gagnon, 1985; Malone, 1981; Silvern, 1986) For example, educational games may focus on teaching language, history, or science facts, while others may be designed to help players improve their problem-solving or strategic thinking skills. Some examples of serious games are: Influent (Howland et al., 2014) and Combat Medic (Alpine Studios, 2002). While serious games can be used for a variety of purposes, they all share the goal of using gameplay to improve the player's understanding of the subject matter. (Dondlinger, 2007)

On the other hand, while there is no one definition of a "conventional" or "mainstream" video game, most observers would agree that these terms refer to games that are mass-produced and widely distributed (the type that is addressed by this study). These games' developers target the quality, gameplay experience, and entertainment factors (Calvo-Ferrer, as cited in Pitarch, 2018). For example, famous, big-budget titles like The Witcher 3: Wild Hunt (CD Projekt, 2007) or Assassin's Creed Series (Ubisoft, 2007-2020) are typically seen as embodying the mainstream gaming sensibility, and they are very popular in the gaming community. Also, smaller independent games like Braid (Number None, Inc., 2008) or Journey (ThatGameCompany, 2012) are often lauded for their innovative gameplay and narrative traditions.

To conclude, although there is a great deal of overlap between these two categories of video games, many games, such as the popular Minecraft (Mojang Studios, 2011), are enjoyed by millions of players regardless of whether they are considered serious or conventional. Both types of video games can provide the fun element and entertain individuals.

2.2. Videogaming in Algeria

Immersive role-playing video-games are available in various devices, including PCs, consoles, and smartphones/mobiles. The choice of the device/platform depends on the player's preferences, availability, and affordability. A recent report from ResearchAndMarkets.com (2022) indicates that videogaming, specifically mobile gaming, is becoming increasingly popular in Northern Africa, including Algeria. The report cites a number of reasons for this trend, including the growing availability of mobile phones and data plans, the increasing affordability of mobile devices, and the widespread adoption of the video game culture in the region. A survey from Adcolony.com (2020) concluded with even more detailed statistics of the mobile gaming in Algeria (Figure 2.1).

Figure 2.1. Mobile Gamers in Algeria (adapted from Jean (2020) at AdColony.com)

As observed in Figure 2.1 (from AdColony.com), 74.4% of Algerian adults play mobile games. The survey also indicates that their favourite games include a variety of genres, including action/adventure, simulation, and role-playing. Jean (2020) also states that Algerian mobile gamers spend more than 3.5 hours on their mobile devices in a day, most of which are spent in gaming. In addition to the gathered data and the provided results, the website also predicts that the number of gamers in Algeria is gradually increasing and the popularity of video gaming is rapidly spreading.

2.3. Defining Computer Role-playing Video games

Immersive video games are those that offer players a setting or an atmosphere that is similar to real life. Just like novels, movies, and plays, immersive games developers aim to create events, storylines, gameplays, and characters that can mimic reality. The setting of this type of games also promotes autonomy and interactivity, to the extent that players can engage in the game with their senses, emotions, and imagination (Ojeda, 2007). One of the most popular genres of immersive video-games is role-playing, which is known for its thematic, story-driven, and exploratory setting. The definition of role-playing video-games will be demonstrated through defining four main concepts: game, video game, role-playing, and role-playing video game.

2.3.1. The Notion of Game

Although there is no single definition of the term 'game' that has been universally accepted (Parlett, 1999), the definition proposed by Abt (1970) is a useful starting point for understanding the concept of games. He states that "a game is an activity in which two or more independent decision-makers seek to achieve their objectives in some limiting context." (p. 6). Following this definition, a game is an activity limited by a set of rules and performed by two or more participants/decision-makers aiming to achieve a specific goal. In this context, games can be used as a tool for learning. When used in education, games provide opportunities for students to make decisions, test hypotheses, and receive feedback in a safe and controlled environment.

Juul (2003) provides a comprehensible definition of and what comprises a game. He states:

> A game is a rule-based formal system with a variable and quantifiable
> outcome, where different outcomes are assigned different values, the
> player exerts effort in order to influence the outcome, the player feels

attached to the outcome, and the consequences of the activity are

optional and negotiable. (Para. 15)

Juul's (2003) definition summarises briefly what a game usually consists. First, players have to be limited and restricted by rules. Second, outcomes of participants' action have different values; each value may or may not be added to the player's score, as they might or might not be to the advantage of the player. Third, in order to achieve good results/scores, players have to spend effort, and that individual effort results in different outcomes. The imaginary setting a game provides for players is immersive. Although the consequences of the activity are negotiable and usually has no effect on the real life of the player, he/she feels attached to these outcomes, as they are the results of his/her spent efforts.

A game can be also defined as an activity that is undertaken for the purpose of amusement or recreation Suits (1990). Games can be played alone or in groups, and can be either competitive or cooperative in nature. Some games require physical exertion, while others are based purely on mental skills. There are also many games that combine both physical and mental elements. In general, games are seen as being distinct from work or other activities that serve a utilitarian purpose. This is because games are typically played for their own sake, rather than in order to achieve an external goal. While there is no single agreed-upon definition of a game, the concept is generally understood.

2.3.1.1. *The Distinction Between a Game and Other Similar Concepts*

People sometimes confuse gaming with other diverting and leisure activities; however, one must distinguish between what a game is and what a game is not. Not every fun, entertaining, engaging, and rewarding activity is considered a game. The following are some of the concepts that are usually confused with games.

- **Play**

Play is not classified as a game. According to Salen and Zimmerman (2004, p. 72), from a descriptive perspective, "games are a subset of play." This means that all games are forms of play; however, not all play is considered a game. A Game is a more organized version of play. Every game has specific goals, rules, and boundaries that distinguish them from other forms of play which can be random and unrestricted. Salen and Zimmerman (2004) also state that:

> Play is both a larger and a smaller term than "game" depending on the way it is framed. In one sense, "play" is a larger term that includes "game" as a subset. In another, the reverse is true: "game" is the bigger term, and includes "play" within it. (p. 02)

The co-authors further argue that "play is an element of games." Games can have some of the main characteristics of play such as, fun, motivation, and challenge. Still, some characteristics of games may not be present in play. For example, role-playing games typically have characteristics such as level progression, in-game economy, and gear grinding that are not present in other forms of play. Understanding the difference between games and play is essential for designing fun and engaging experiences for players.

- **Puzzles**

Puzzles are usually depicted as games since players have fun while trying hard to solve complex puzzles. However, puzzles are not games. They are challenging and can be fun to solve, but they lack the interaction element which is an important part of games. According to Crawford (1982), compared to a game, puzzle lacks interaction. Players do not receive feedback while solving crosswords, anagrams, or jigsaws. Hence, the puzzle is not affected by the player's actions. For instance, an anagram or a crossword do not change when the player solves it; it is more like an exercise in a classroom. Smed and Hakonen (2003) state

that "although puzzles are not games, games can include puzzles as subtasks." (p. 03). In other words, puzzles are usually a part of games, especially CRPGs, which include puzzles and riddles that are necessary/optional to solve before proceeding with the story, as in Rise of the Tomb Raider (Square Enix, 2016). Game puzzles are an interesting and challenging part of the story. To sum up, puzzles alone are not games; they are simply puzzles. Nevertheless, most games include puzzles as a side activity for the sake of gameplay diversity, challenge, and amusement.

- **Toys**

Toys are not games. Unlike games, toys do not have specific rules that govern the way they are used in play; individuals may use toys however they want (Smed & Hakonen, 2003). For instance, a doll can be dressed up; a ball can be thrown, caught, or juggled. Furthermore, toys such as balls, bats, and dolls can be included and used in games as preps such as balls in soccer, bats in baseball, and dolls in dollhouses.

- **simulations**

Simulations, as most people might disagree on, are not games. According to Sauvé (2007),

> simulation is a dynamic and simplified model of reality and it is judged by its realism, by its correspondence to the system which it represents. A game is created without any reference to reality… Simulation is not necessarily a conflict, a competition, and the person who uses it is not looking to win. (p. 253)

From Sauvé's (2007) distinction, simulations and games differ in Four main aspects. First, simulations are designed to reflect, represent, and recreate reality, whereas games are designed without any reference to reality. Game creators aim to provide players with a fictional, unreal setting, packed with features that are not available in the real life. Second,

unlike games, simulations lack rules and instructions. Simulations are typically exploratory and passive, whereas games are interactive and active. When an activity ends in simulation, "there is no indication that the player won." (p.253). On the other hand, most activities in games are rewarding; when a player ends a task in a game, he/she will receive a reward (e.g., score). Third, given that simulations are not necessarily restricted by rules, the whole activity doesn't involve any sort of competition or conflict. In other words, in simulations, there will be no "winners" or "losers." Sauvé also states: "Users are not trying to win, as they are always doing in a game." (p. 253). Fourth and finally, in contrary to games, simulations can function without human intervention, as in the example given by the same author: the dynamic representations of planetary movements in the solar system.

The above-mentioned concepts are often misunderstood as being games. However, they are not considered games. Play, puzzles, toys, and simulations might include some of game elements such as fun, collaboration, reward, challenge… etc. Furthermore, they might be included as a part/stage, a side task, or a feature in a game. Nevertheless, as individual activities, they are not games.

2.3.2. The Notion of Video Game

"Games that use computer technology and video display are known as video games" (Juul, as cited in Barreto et al., 2017, p. 02). A video game is a game played with an audio-visual device, such as a computer, a handheld console, or a television. The game can be based on a story, characters, or gameplay, and often uses artificial intelligence to generate events (Esposito, as cited in Arjoranta, 2019). Video games are usually classified by genre, such as action, adventure, role-playing, strategy, and simulation. Some video-games are specifically educational, while others are used for entertainment purposes only. Video-games have become increasingly popular over the years, with gamers of all ages and levels of experience.

2.3.3. Defining Role-play

According to Mann (1956, as cited in Zagal & Deterding, 2018), "A role-playing situation is here defined as a situation in which an individual is explicitly asked to take a role not normally his own, or if his own in a setting not normal for the enactment of the role." (p. 227). Henriksen (2002, as cited in Zagal & Deterding, 2002) defines role-play as "a media, where a person, through immersion into a role and the world of this role, is given the opportunity to participate in and interact with the contents of this world." (p. 44). "Roleplaying is the art of experience, and making a roleplaying game means creating experiences" (Peterson 2006, p. 101).

2.3.4. Role-playing Games

An RPG, as defined by Cheville (2016), is "a textual system consisting of rules for game mechanics, stories (modules) that give meaning and context to the actions of characters and means of social interaction through which a story is co-created." (p. 810). An RPG can also be considered as "any game which allows a number of players to assume the roles of imaginary characters and operate with some degree of freedom in an imaginary environment." (Lortz, 1979, as cited in Zagal & Deterding, 2018, p. 04). According to Grouling (2010), A role-playing game is a game in which players assume the roles of characters in a fictional setting. Players take responsibility for acting out these roles within a narrative, either through literal acting or through a process of structured decision-making regarding character development. Furthermore, Zagal and Deterding included yet another definition, proposed by Simkins (2015):

> An RPG is a game, not a game system or product, but a game
> experience that that a player plays, in which the player portrays a
> character in a setting. Each player's portrayal of their character must
> include three components: immersion, experiencing the character;

acting, performing in character; and gaming, obeying and

manipulating rules and goals in character." (Simkins, 2015, as cited in

Zagal & Deterding, 2018, p. 06)

Following these definitions, an RPG is an entertaining activity that consists of three

main components: imaginary characters, rules or game instructions, and a story (characters,

setting, plot, conflict, resolution). It appears, according to this definition, that the story is the

main feature/characteristic of an RPG. All characters, rules, gameplay, game mechanics are

governed by the genre, the theme, and the conflict of the story. For example, if a game

revolves around magic, sorcerers, and witches, the setting of the game will be a fantasy

world; the characters are sorcerers (as heroes/villains); the weapons are probably magical

sticks and spells; players will probably be able to fly and perform magic tricks (in the game).

2.3.4.1.   *The Origin of RPGs*

The genre of role-playing games is rooted in TSR (Tactical Studies Rules), Inc's

Dungeons & Dragons (D&D, Gygax & Arneston, 1974a). In this popularized form, the player

takes on different roles such as healer, warrior, wizard. While exploring the dungeon and

fighting monsters, the group of players are directed by the group's Dungeon Master or

assigned storyteller. (Hosch, 2019). The game is played as follows:

On a paper gameboard, surrounded by a fictional setting, a gamemaster forms and

narrates the events of an imaginary story. Participants role-play using their hands to move the

small figurines, cards, dices, their voices to verbally describe their actions, and their

imagination to traverse into a world of their creation (see Figure 2.2 and figure 2.3). This way

of gaming is how individuals used to play tabletop role-playing games (also known as pen-

and-paper RPGs: a form of RPG in which players describe their characters' actions through

speech) before RPGs were incorporated in the digital world of video games when digital

games were not so popular and widespread, named as "tabletop role-paying games." (Torres-

Rodriguez & Martínez-Granada, 2002)

Figure 2.2. **Dungeons & Dragons Game in Progress. (From Wikipedia, the free**

encyclopedia)

The following image, from Torres-Rodriguez and Martínez-Granada (2002), contains

a collection of tabletop games that are played manually by participants:

***Figure 2.3.* Examples of Tabletop Roleplaying Games (adapted from Torres-Rodriguez & Martínez-Granada, 2002, p.109)**

2.3.4.2.   Computer RPGs

Role-playing is a video game genre where the player controls the actions of a one or more characters immersed in some well-defined virtual world (Schules et al., 2018). Many CRPGs have origins in tabletop role-playing games (such as TSR's Dungeons and Dragons) and use much of the same terminology, settings, and game mechanics. Video games developers literally adopted the concept of tabletop role-playing games and incorporated it in digital format games, keeping all features of these pen-and-paper RPGs and bringing it to the digital, imaginary world (Hosch, 2019). Digital RPGs or CRPGs have gained massive popularity worldwide during the past few decades with a worldwide revenue that is projected to reach $75 Billion by 2022 (Statista, 2021).

In CRPGs, the player controls one or more adventuring heroes who undertake quests (e.g., missions, activities...), battle enemies, hunt/loot treasures or valuable items, or just

wander in and explore the open virtual world. In the process, the player has to gain experience points in order to level up their characters, unlock skills, and grow stronger. Players must grapple and tussle with monsters, traps, puzzles and often collect items as a part of the gameplay. All these actions happen in a fictional setting guided by a storyline (i.e., it contains all story stages: exposition, rising action, climax, falling action, and resolution). In addition, CRPGs typically deviate from turn-based systems by incorporating action elements into the gameplay. (Torres-Rodriguez & Martínez-Granada, 2002)

2.4. Sub-types of CRPGs

While role-playing games (RPGs) have been around for decades, the sub-genre of computer RPGs (CRPGs) is relatively new. According to Schules et al. (2018), there is seemingly an endless variety of video games that incorporate the game elements/mechanics of CRPGs. Still, there is no agreed-upon definition of what constitutes a CRPG. Nevertheless, Wolf's (2002) taxonomy might be a comprehensible classification of CRPGs sub-genres.

According to Wolf (2002), there are four main sub-types of CRPGs: tactical or simulation RPGs (SRPGs), action RPGs (ARPGs), roguelike, and Japanese RPGs (JRPGs). Although there are more types of CRPGs, this study will focus only on these four forms, given that they are the most popular and most "stable" as they have been in use for a couple of years in the gaming press and colloquially by gamers. (Schules et al., 2018)

2.4.1. Tactical or Simulation RPGs

Tactical role-playing games (TRPGs) are a type of video game that pits the player against either an AI or a human-controlled opponent. It focuses heavily on pre-planned combat encounters. TRPGs are distinguished by their emphasis on strategic planning, length of combat encounters, and reduced opportunities to "grind" or otherwise level characters. The first TRPG, Wizardry: Proving Grounds of the Mad Overlord, was released in 1981. TRPGs often require a high degree of strategic thinking and planning in order to succeed. This can

make them quite challenging, but also very rewarding. Many TRPG fans enjoy the feeling of satisfaction that comes from overcoming a difficult encounter through careful planning and execution. The following image is a collection of screenshots taken from Final Fantasy Tactics (Square, 1998):

Figure 2.4. **A Collection of In-game Screenshots Taken from Video Game: Final Fantasy Tactics (Square; 1997)**

As shown in Figure 2.4, the game does not involve only strategic gameplay, it also includes dialogues between the player and non-player characters (NPCs). These dialogues are an essential part of the game and have to be well-understood before the player can accomplish the objective and move to another mission/quest. (Schules et al., 2018)

2.4.2. Action RPGs

Action RPGs are a popular genre of video games, characterized by real-time combat and a simplified character development system. The first action RPG was released in 1981, and the genre has since grown in popularity. Unlike TRPGs, which are based on decision making and tactical planning of gameplay, ARPGs introduced a measure of player skill into the CRPG form by integrating dexterity and reflexes into gameplay. This new gameplay style was popularized by titles such as Secret of Mana (Square, 1993) and Legend of Zelda: A Link to the Past (Nintendo, 1991). By completing objectives and accomplishing quests, the player gains experience and, thus, can level up his/her character and unlock skills (exploration or combat). Many action RPGs are set in medieval or fantasy worlds, and often incorporate elements of puzzle-solving and dungeon crawling. (Schules et al., 2018). The following is a collection of screenshots taken from The Legend of Zelda: A Link to the Past.

Figure 2.5. **A collection of Screenshots Taken from Video Game: The Legend of Zelda: A Link to the Past (Nintendo, 1991)**

Since ARPGs gameplays are also governed by a storyline (Schules et al., 2018), they include dialogues, narration of events, and script-like text blocks and hints. The player, again, needs to understand and follow the flow of the narrative to have a complete gaming experience and continue with the game quests.

2.4.3. Roguelike

Roguelike is a CRPG Sub-type that originates from the 1980's Rogue: a video game designed by Michael Toy and Glenn Wichman with later contributions by Ken Arnold. In the game Rogue, players take on the role of a dungeon-crawling adventurer in search of the Amulet of Yendor. The game is played in a text-based interface, and the player's character is represented by a single letter. The goal of the game is to reach the bottom of the newly-

generated dungeon, where the Amulet is said to be located. Along the way, the character will gain experience and levels through defeating monsters and gathering treasures, making them better equipped to face the challenges ahead.

One of the main features that distinguishes this game genre/sub-type from other games is procedural generation, a technique that is used to create data or content algorithms. In the context of roguelike games, this means that the map is generated randomly each time the game is played. This feature creates a unique and replayable experience, as no two playthroughs will be exactly the same.

According to Schules et al. (2018), this type of video games that falls under these criteria is called roguelike. Many video game developers and companies adapted and incorporated the game Rogue's features in newly-designed CRPGs. One of the earliest examples is 1996's Bethesda Softworks' Daggerfall.

Figure 2.6. **A screenshot taken from The Elder Scrolls II: Daggerfall (Bethesda Softworks, 1996)**

A game like Daggerfall (Bethesda Softworks, 1996) consists of a massive linguistic content in which the game, the story, and the construction are mainly understood. Its players are highly dependent on these instructions to fully understand the game, how it is played, and how they can complete it.

2.4.4. Japanese RPGs

JRPGs, or Japanese role-playing games, are a subgenre of role-playing games that are typically characterized by their anime-inspired aesthetics, turn-based gameplay, and focus on story. Unlike other RPGs which are defined largely by their gameplay mechanics, JRPGs tend to be defined more by their narrative structures and general atmosphere. (Schules et al., 2018)

This classification emerged after the noticeable differences between games that are developed by Western companies/developers, known as Western RPGs (WRPGs) and those which are developed by Japanese developers, known as new genre JRPGs. (Schules et al., 2018)

According to Extra Credits Website (Extra Credits, 2012), the main element that distinguishes JRPGs from WRPGs is the narrative engagement. Specifically, in JRPGs, players are typically passive observers of the story, while in WRPGs, they are active participants. As a result, JRPGs tend to be more linear and focused on plot, while WRPGs emphasize player choice and freedom. In either case, though, the goal is to create an immersive and engaging experience for the player.
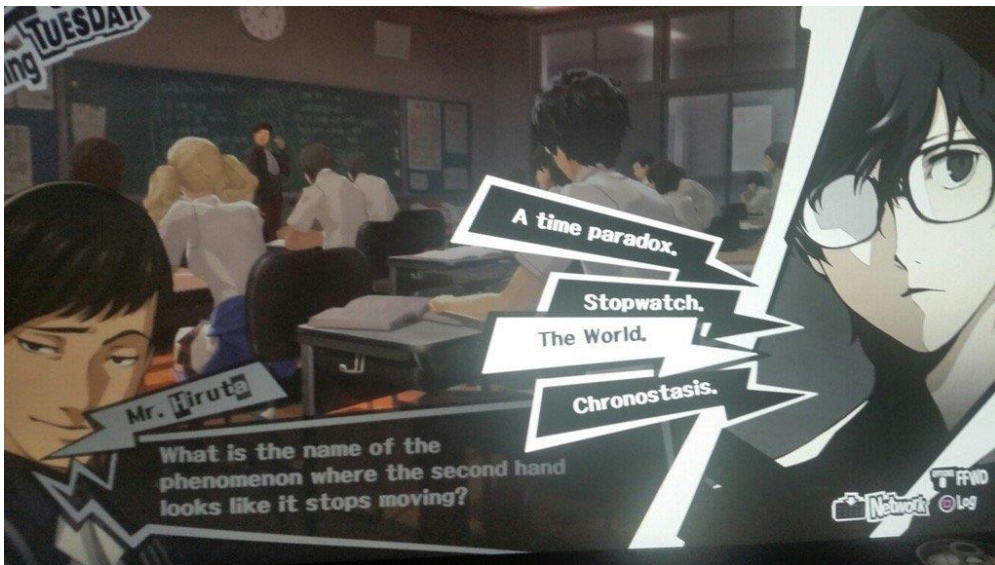
Figure 2.7. **A Screenshot Taken from JRPG Persona 5 (Atlus & P Studio, 2016)**

Probably, one of the most popular JRPGs is Persona 5 (Atlus & P Studio, 2016). Although it contains turn-based combat instances, the whole game is played through having dialogues with NPCs and decision making. The player literally lives the story in the form of a game. In contrary to movies, plays, and short films, the player has full control of the story events, as his choices determine the ending of the story. Thus, understanding context and story details is crucial for players to complete the game. JRPGs developers seem to focus on the narrative and the story telling element, which makes players more focused on the linguistic content and deeply immersed in the game.

2.5. Characteristics of CRPGs

Although the previously-mentioned subgenres of RPGs differ in some aspects, they all share the same characteristics (as well as many different genres of video games), which were summarised by Zagal and Deterding (2018) as follows:

	RPGs/Online RPGs	
Play situation	Social	Single person/online multiplayer optional

	Spatial	Private space with computing device (e.g., computer, console, mobile)/ Individual players can access a joint mediated game world via Internet.
	Temporal	Multiple sessions, lasting minutes to hours at a time
	Role differentiation	Computer determines and controls game world, including non-player characters, player enacts player character(s)
	Ethos	Individual aims for an autotelic experience (optional multiplayer collaboration)
Characters		The player creates and governs the actions of one or more characters (when online, players control individual characters)
Game world	Constitution	A computational model generating audio-visual representations on the player's interface that ground the player's imagination, updating model and representation in response to player input
	Theme	Usually genre fiction: fantasy, science fiction, horror, etc. or a genre mix
Rules	Possible actions	Attempted character actions are limited to options made available through the game interface
	Action resolution	Determined by a quantitative probabilistic rule system, in real-time play involving the player's reflexes and hand-eye coordination
	Combat	Extensive rules for combat Extensive rules for combat
	Progression	PCs improve over time via systems for progression
	Closure points	Play is open-ended, though players usually aim for satisfying closures per session
	Pre-scripting	Events are guided along pre-planned plots through the extensive scripting of the game world, with various degrees of freedom for players' goals

Table 2.1. **Common Characteristics across CRPG Forms (Zagal & Deterding, 2018, pp. 35-37)**

The co-authors classified CRPGs' characteristics under 4 main categories: play situation, characters, game world, and rules. Game developers design these four pillars, which will be later accessed by players individually. The play situation is usually dependent on the player choice. The player is the one to decide how many hours he/she spends playing the game, whether individually or cooperatively with other players (if the game has the online options), and on a mobile, personal computer, or a console. Nevertheless, other features are predetermined by the game design, including the role assigned to the player and the NPCs, controls (specific buttons assigned to specific actions), and the game mechanics and world design.

In RPGs, the player has control over the main character that he/she will assume the role of in the game. Starting from creating the character and customizing its looks, skills, and gears to deciding upon every action it takes in the game (i.e., the player controls how the character walks, where it goes, and when and how it completes quests).

Another important dimension of RPGs characteristic is the game world. As the co-authors suggest, the game world is an important factor that limits and governs the gameplay of a game. CRPGs' virtual worlds are usually massive and highly interactive compared to other game genres. Players are usually able to travel, interact with objects, gather items and treasures, and build/destroy objects/buildings. In other words, in CRPGs, players affect and get affected by the game world (e.g., even weather can affect the character the player is taking control of.).

Finally, like any game, CRPGs have rules and instruction that the player must abide by in order to complete the game. For instance, if the game instructs the player to go to a certain location to do a quest, he/she must follow these instructions and head towards that specific location in order to reach the quest objective.

Most of these characteristics gather to form an immersive experience of gameplay for gamers to enjoy. However, the previously-mentioned elements can be found in almost any CRPG. Other scholars, such as Susi et al. (2007), Mackay (2001), and Crocco (2016), provide different sets of what characterises CRPGs. The elements and characteristics provided by these scholars (which will be discussed in the next section) are actually what makes video games, such as CRPGs, an arguably effective tool in Language and vocabulary acquisition.

2.6. The Use of Video Games in Language Learning

In his article " Towards a Pedagogy of the Global: Information and Communication Technology, Intercultural Literacy and Collaboration," Bindé (2005) argues that the use of technology and internet has the potential to revolutionize learning and support intercultural literacy. He claims that these tools can, in addition, promote and facilitate self-learning. Furthermore, López and Cáceres (2010) and Moline (2010) claim that playing video games can help improve learners' cognitive processes, including problem-solving and decision-making, and cognitive abilities (e.g., speed processing) (Anderson & Bavelier, as cited in Barreto et al., 2017). The following section will discuss the concept of gamification, which includes using video games as educational tools as well as some of the game characteristics that correlate with the promotion of learning (including language learning). The following are some of the educational concepts that involve video games.

2.6.1. Gamification

During the past few years, gamification has become one of the most popular methods for teachers to motivate students (Cambridge English, 2019). The term "gamification" had its origins in the digital media industry. It was first used in a blog post by Brett Terrill in 2008. However, it wasn't until 2010 that gamification was widely adopted by the scientific community. (Deterding et al., 2011a)

Gamification can also be defined as the use and adoption of game mechanics to modify the classroom environment, motivate students to work on a task, and thus, promote learning (Cassie; Woods, as cited in Torres-Rodriguez & Martínez-Granada, 2002). Thus, the focus of the exercise becomes the learning objective rather than the recreational nature of a game.

According to Oxford advanced learners dictionary, "gamification is the application of typical elements of game playing (e.g., point scoring, competition with others, rules of play) to other areas of activity, typically as an online marketing technique to encourage engagement with a product or service."

Gamification can take many forms, such as using scores, ranks, and leader-boards. These lesson preps can encourage students to complete tasks and compete with one another. Games also offer immediate feedback, which can help students to understand concepts more quickly and retain information more effectively. When successfully implemented, gamification can produce positive results, such as increased engagement and motivation, improved learning outcomes, and even increased productivity. (Torres-Rodriguez & Martínez-Granada, 2002)

2.6.2. Computer-assisted Language Learning (CALL)

According to Beatty (2003) CALL is "any process in which a learner uses a computer and, as a result, improves his or her language" (p. 07). Thus, CALL is an approach to language teaching and learning that makes use of technology. It can take a variety of forms, from simple drill-and-practice software to more sophisticated programs that provide a realistic simulation of face-to-face conversation.

2.6.3. Digital Game-based Learning (DGBL)

According to Prensky (2007), digital game-based learning is "any learning game on a computer or online" (p. 146). It is a form of gamification, where video games are used as a

learning tool; the ultimate objective of playing a video game is to learn something (Squire, 2013). Digital game-based learning is nothing new, as it first gained popularity around 2011 (Squire, 2013). Recent research has found that there are plenty of benefits in using digital games in education. According to Hsiao (as cited in Squire, 2013), the use of video games as a learning tool can help increase motivation and create autotelic-conducive environments (Karagiorgas & Niemann, 2017).

Video gaming is generally seen as a distracting and purely-entertaining activity. However, many approaches, such as gamification, CALL and DGBL, have proven to be fruitful in language learning. Furthermore, there is an increasing body of evidence to suggest that individuals who play games in their non-native language can actively acquire the target language as they progress in the game or/and cooperate and communicate with other players (Chik, 2011; Rama et al., 2012). Furthermore, gaming doesn't only involve the process of playing and completing a game spontaneously; for instance, most gamers frequently visit other wiki websites to gather valuable information (for the players) about gaming walkthrough or simply information about the game and how a certain game/quest objective can be reached. In addition, research suggests that exposure to immersive digital games help in acquiring the target language (Thorne et al., 2012; chik, 2011).

2.7. CRPGs and Incidental Vocabulary Acquisition

Commercial/mainstream video games being a potential language learning tool is not novel in academia. Research suggest that games can provide an immersive and motivating environment in which language learners can make significant progress (deHaan & Kono, 2010; Jensen, 2016; Newcombe & Brick, 2017; Turgut & İrgin, 2009). In this sense, Reynolds (2014) is more specific; he argues that incidental vocabulary acquisition in video games occurs in correlation with task-induced involvement. He further explains that vocabulary is acquired as a by-product of learners' engagement in solving a task in the game,

adding that digital game-based learning is a form of incidental learning. The author also suggests that extensive video gaming might can be even more rewarding, particularly effective at prompting incidental learning. Given that learners may already be frequently playing video games as an after-school, free-time activity, learning adjustments would not even be needed.

Sylvén and Sundqvist's (2012) experiment has concluded with even more detailed and accurate results. The co-others found that frequent gamers (learners who spent an average of 2.6 hours a day playing video games as an after-school activity) acquired a greater amount of vocabulary than non-gamers or those who spent less time in playing video games. Serious games, which proved to promote intentional learning, are considered boring and linear for learners. O the other hand, casual/mainstream video games, that are enjoyed as an out-of-school activity and at the pace chosen by the learner, promote incidental learning, which occurs as a by-product of gaming.

Incidental learning is also referred to as stealth learning, which is more likely to occur outside the classroom as an informal learning. De Feritas and Mahrag (2011) define stealth learning as:

> Stealth Learning consists of the educational gain by players, when either a learning objective is not immediately apparent, where content helps a player to gain information in some way, or where secondary learning objectives are achieved as a result of the content. (p. 112).

Sylvén and Sundavist's claim that there is a positive correlation between L2 gaming and incidental and informal L2 learning is based on their observation that L2 learners who play games often outperform those who do not in tests of reading comprehension. They believe that the reading of in-game texts, which are often complex and require considerable interpretation, is a key learning facilitator. (As cited in Chik, 2014, p. 86)

Teacher Reading Academy (Texas Center for Reading and Language Arts, 2002) suggests that the success of independent word-learning strategies should include the effective use of context clues. In this regard, Beheydt (1987) formulated a list of conditions (which are relevant to the present study) under which the use of context in foreign language learning is effective:

- The context of a new word should consist of known vocabulary;

- The new word must be in a pregnant semantic context, a verbal context that prototypically evokes the concepts associated with the word;

- The context should reveal the syntactic use and morphological structure of the word;

- The new word must be used again and again in a variety of contexts as this provides more cognitive activity and thus many different possibilities for embedding the words in a meaningful semantic network.

Many, if not all, of these conditions can be met in a video game context. In addition to visual imagery, sounds, game instructions, and game hints, video games are lexical rich. One of the player's requirements is to read texts, descriptions, instructions, and dialogues in video games. The player is required to understand these passages in order to fulfil objectives, complete quests, and thus, reach the ending of the game.

The following elements of computer role-playing games might also be some of the factors that lead to incidental vocabulary acquisition:

2.7.1. The Role of Immersion in CRPGs

The video games that are being designed nowadays, with their incredibly detailed graphics and realistic illustration of the real world, are highly immersive (Terzioglu, 2015). According to the author, "Immersion is a version of concentration, which is applicable to the narratives, stories and environments that exist within an alternative, pseudo reality." (p. 03).

He also argues that immersion in video games promotes "non-trivial interaction" (p.03), and these three elements—visual stimuli, immersion, and interaction—consequently create a genuine and responsive environment. In other words, video games, similar to books and novels, have the capacity to make gamers concentrate with the narrative but in a stronger fashion, given that the story of the game is lived rather than read. Generally, players do not need the intervention of or the interaction with the real world when gaming, as they are completely concentrated/immersed in the game world. Thus, the gaming experience can enhance players'/learners' autonomy, problem solving, and critical thinking skills; ultimately, it promotes incidental language learning. (chik, 2011; Chik, 2014)

2.7.2. The Role of Task-solving in CRPGs

Task-solving is one of the main characteristics and elements of video games (including CRPGs), as players are instructed to solve multiple tasks in order to make progress in the game (Ziegler, 2016). Furthermore, players are required to find/create ways to solve tasks in video games (e.g., finding someone/something, finding exists/locations, solving puzzles, crafting items…). Thus, players have to find a way around game rules and game mechanics to find a solution to the problem at hand and solve/complete the tasks, given that the most possible way to get help is using in-game hints/help.

In 2002, Sampson and Karagiannidis argued that task-solving should be a key principle of electronic education. Simultaneously, both Cohen (2007) and Jarvis (2009) suggest that the best learning experiences come from first-hand experience. This is where video games can be particularly useful as an incidental learning tool (Pitarch, 2018).

Through immersing players in a simulated real-world environment, serious games can provide learners with a safe space to experiment and make mistakes without any real-world consequences. This type of experiential learning has been shown to be more effective than traditional methods such as lectures or textbooks (Cohen, 2007; Jarvis, 2009). As a result, the

use of video games to introduce new tasks is a highly effective learning strategy that can provide learners with the skills and knowledge they need to succeed in the real world.

2.7.3. The Role of Motivation in CRPGs

The psychological state and emotions play a fundamental role in and affect the gaming experience as well as the learning process is highly affected by players'/learners' psychological stat and emotions, one of which is motivation (Pitarch, 2018). Motivation is one of the coditions under which learning, including language learning, is promoted and enhanced (Pitarch, 2018; Ebrahimzadeh & Alavi, 2016).

According to Yee (2006), there are mainly three motivational factors that lure people to play video games: achievement, social, and immersion factors. First, advancing in a game and completing objectives and quests gives a sense of satisfaction; this feeling of satisfaction is a result of achieving expected outcomes and accomplishing missions in a video game. Second, socialising, interacting, and communicating with other players in a virtual world or simply being in a team doing a cooperative task also gives a sense of satisfaction and enjoyment. Third, assuming the roles of virtual characters, discovering hidden objects and freely interacting with the game world, and making changes in a virtually lived narrative immerse players in video games. These three factors, suggested by Yee (2006) make players more satisfied with, more attached, and, thus, more motivated to spend more hours doing the same activity. (Yee, 2006)

Ebrahimzadeh and Alavi (2016) suggest that a motivated learner's learning process is more effective than that of an unmotivated learner. The co-authors added that motivation (e.g., in the classroom) makes the learning process more rewarding and straightforward. Their experiment concluded that learners are more engaging, autonomous, and motivated to learn when exposed to video games. The following table (by Malone and Lepper) classifies two

types of motivation that can attract learners' attention: individual motivation and interpersonal motivation.

		a. Goals
Individual Motivation	1. Challenge	b. Uncertain Outcomes
		c. Performance Feedback
		d. Self-Esteem
	2. Curiosity	a. Sensory Curiosity
		b. Cognitive Curiosity
	3. Control	a. Contingency
		b. Choice
		c. Power
	4. Fantasy	a. Emotions
		b. Cognition
		c. Endogeneity
Interpersonal Motivation	1. Cooperation	
	2. Competence	
	3. Recognition	

Table 2.2. **Types of Motivation (Malone & Lepper, as adapted from Pitarch, 2018, p.1149).**

According to Table 2.2, individual motivation is governed and affected by learners' emotions towards challenge, curiosity, control, and fantasy. These four elements have their representation in video games in forms of game components (e.g., goals, performance feedback, choice, and emotions). Interpersonal motivation, on the other hand, is governed by

learners' social interaction with other individuals, and these interactions come in form such as cooperation and competence.

Conclusion

Despite the fact that video games are generally seen as a pure-entertainment activities, a waste of time, and distraction, it is evident and undeniable that the video game culture and video gaming continues to spread. Video game popularity, especially role-playing, is increasing. The love and passion for this type of games can be directed toward a more beneficial goal, such as learning a language. Even though it is an unformal method, acquiring English vocabulary, as the literature indicates, is not impossible. In fact, it even started to be encouraged by scholars, teachers, and schools across the globe. If used correctly, CRPGs might be an effective informal tool for EFL's incidental vocabulary acquisition.

CHAPTER THREE: Methodology and Data Analysis

Contents

Introduction

The present chapter aims primarily at providing an introduction of the theoretical background of the used methodology and the followed design. This chapter also includes the quantitative and qualitative data analysis and interpretation of both students' questionnaire and focus group discussion that aim to test whether EFL students can use computer role-playing games to learn/acquire vocabulary incidentally. Then, the findings are analyzed and organized in order to confirm or reject the research hypothesis.

3.1. Theoretical Background

Before introducing the data analysis and interpretation and the final results of the current research, a theoretical background of the adopted research methodology is first discussed in this chapter. It will highlight the research approach and strategy, the sampling and data collection methods, and the data analysis procedures.

3.1.1. Research Approach

A research approach is a plan and set of procedures for research that covers the steps from initial assumption to detailed methods of data collection, analysis, and interpretation. According to Cresswell (2014), research approach includes the theoretical assumptions, strategies, and exact methods used to gather and analyse data and can be divided into three main categories: quantitative, qualitative, and mixed-methods. Each approach has its own strengths and weaknesses, and the choice of approach should be based on the research question being asked.

- **Quantitative Research:** It is the systematic process of investigating a phenomenon through objectively collecting and analysing numerical/quantifiable data (e.g., age in numbers, scores, averages…) using statistical methods and/or software (e.g., SPSS)

- **Qualitative Research:** It is the process of investigating a phenomenon (in its natural setting) or attempting to understand a concept through objectively collecting and

analysing non-numerical/unquantifiable data (e.g., opinions, experiences, behaviour observations…) using non-statistical methods (e.g., interviews, focus group, observation…).

- **Mixed-methods Research:** This type of research combines both previous approaches to empirical research where numerical and non-numerical data are gathered and analysed statistically and non-statistically (if needed). It also involves both quantitative and qualitative data collection tools to gather required data (e.g., surveys, observation, interviews…).

3.1.2. Research Strategy: Case Study

According to Stake (1995), the case study refers to the in-depth analysis of a single case. This type of research is referred to as an "empirical inquiry" (Yin, 2003, p. 13). It allows for a close examination of an individual, group, organization/institution, or event in its real-world context. When case studying, the researcher might use a variety of data collection analysis methods (e.g., interviews, document archive analysis, focus groups). Verschuren (2003) adds that the researcher can also use a questionnaire as a quantitative data collection tool.

3.1.3. Data Collection Methods

Data collection methods are a variety of tools and instruments (e.g., questionnaires, surveys, focus groups, observation…) used to gather information in form of quantitative/qualitative data.

3.1.3.1.   Questionnaires

A questionnaire is a document containing a number of diverse questions designed to collect specific data for analysis. There are mainly three types of questionnaires: structured (i.e., it contains pre-coded questions, easy for administration and data management), unstructured (i.e., it includes open-ended questions), and semi-structured (i.e., it includes both

open-ended and closed-ended questions). Questionnaires are widely used by researchers because, as Dörnyei (2007) claims, a questionnaire is an efficient data collection tool in terms of researcher time, effort and financial resources; it allows them to collect an enormous amount of data in a very short period of time.

There are various question types that can be included in a questionnaire:

- **Likert Scale:** it is a summative rating scale designed by Rensis Likert in 1932 to measure attitudes. It typically involves pre-coded responses to certain statements (i.e., it involves 3-7 points: strongly disagree, disagree, neutral, agree, and strongly agree).

- **Open-ended Questions:** according to Dörnyei (2007), this type of questions gives the opportunity to questionnaire respondents to elaborate and express their opinions in detail and to the researcher to receive more feedback concerning a certain idea/topic. The author adds that this type of questions might unveil issues that have not previously noticed.

- **Multiple-choice Questions (MCQs):** MCQs are a type of closed-ended questions that is popular for its wide usage in standardized foreign language tests. Respondents are asked to choose one or more pre-determined answers/options to a specific question. These questions are usually brief, easy to read, administer, and analyse (ibid).

3.1.3.2. *Focus Group*

A focus group is "a research technique that collects data through group interaction on a topic determined by the researcher" (Morgan, 1996, p. 129). Specifically, the researcher usually open-ended questions in a group discussion to be later answered and elaborated by the participants. In focus group discussions, the researcher aims to collect qualitative data and get an in-depth understanding of a certain event/social issue.

3.1.4. Research Sampling

A population is "a group of individuals who have the same characteristic" (Creswell, 2012, p. 142). That is, a population is a group of people who share the same characteristics that correspond to and are compatible with the research objectives. A sample is "a subgroup of the target population that the researcher plans to study for generalizing about the target population." (ibid). Therefore, a sample is a portion of the target population.

3.1.4.1. Sampling procedures

Sampling procedures are a set of strategies the researcher uses to extract a sample from the target population, and there are mainly two types: probability sampling (i.e., a complex, scientific procedure which involves expensive and planned methods and is usually beyond the capacities of an ordinary applied linguist; participants have an equal chance of being selected) and non-probability sampling (i.e., a less complex procedure that involves less-expensive methods and easily-reached resources that attempts to achieve representative results through extracting a reasonably representative sample; participants do not have an equal chance of being selected).

Probability sampling involves four main techniques:

- **Random Sampling:** the main objective of random sampling is that each individual has an equal chance of being selected in the sample. This technique guarantees a non-bias selection of the sample that is representative of the target population.

- **Systematic Sampling:** it is a type of probability sampling that is similar to random sampling. However, with systematic sampling, every unit of the population is represented with a number. Thus, members of the target population are chosen according to some systematic rule. For example, every third member/unit is selected.

- **Cluster Sampling:** it is a probability sampling technique which the target population is divided into several groups/clusters such as, classrooms, levels, or schools. The researcher randomly selects some clusters/groups to be their sample.

- **Stratified Sampling:** it is used first to divide the target population into groups according to a certain criterion (i.e., each group consists of members that share same characteristics). The aim of this technique is to make subpopulations from the target population and then randomly select members from each group.

Non-probability sampling also involves four main techniques:

- **Quota Sampling:** it is a non-probability sampling technique that involves selecting members from already-existing sub-populations (classified according to age, gender, race…). However, unlike stratified sampling technique, quota sampling involves non-random selection of only-available/volunteering members.

- **Convenience/opportunity Sampling:** also known as availability sampling, convenience sampling is a non-probability sampling technique that involves selecting members who are conveniently available and under certain conditions that are convenient for the researcher.

- **Voluntary-response Sampling:** it is a non-probability sampling techniques where the researcher is not the one responsible for selecting the sample. Instead, a set of volunteers are welcomed to be the sample of the study.

- **Purposive Sampling:** also referred to as judgmental sampling, purposive sampling is a non-probability sampling technique that involves selecting sample members that meet specific criteria. These criteria usually serve the objective of the research and the selected sample is believed to be fit for the study.

Even though theory is important in guiding research, it is the practical considerations that often have the most significant impact on decisions about sampling procedures. This might be particularly true when resources are limited. For instance, a researcher may be fully aware that a certain type of sampling method is most suitable for his/her research. Still, if time and money are tight, another method may need to be opted for instead; sometimes a non-probability sampling is more practical that probability sampling, especially in social sciences studies. In this regard, Kemper et al. (2003) claims that sampling issues might force pragmatic choices.

3.2. Research Design

3.2.1. Research Approach

The researcher adopted a mixed-methods approach because it serves the nature and the objectives of this study.

3.2.2. Research Strategy

The researcher selected a case study as a research strategy, in an attempt to investigate a small-scale issue at Biskra University.

3.2.3. Data Collection Methods

Two types of data collection tools were used in this study. The process of data collecting was divided into two phases. In the first phase, the researcher relied mainly on a students' questionnaire. The second phase of data collection process comprised one qualitative data collection tool: a focus group with English language students (from Biskra University) that play CRPGs frequently.

3.2.3.1.   Students' Questionnaire

- **Rationale and Aim:** the aim of the students' questionnaire is to provide an overall understanding of the learners' English language proficiency level, their vocabulary learning strategies, their learning styles, and experiences with video games and the

gaming environment. In addition, through the questionnaire, the researcher will determine the overall attitude of EFL students at Biskra university toward acquiring English vocabulary through playing CRPGs.

- **Structure and Content:** the questionnaire was sent online to (40) master-level students (from Biskra University) who frequently play CRPGs. The questionnaire consisted of Likert-scale and multiple-choice questions distributed across three sections.

   Section One: Vocabulary Learning: This section aimed to collect data on the students' vocabulary knowledge and proficiency level and comprised Likert Scale questions. It included questions/statements (Q1-Q6).

   Section Two: CRPGs and Incidental Vocabulary Acquisition: this section aimed to collect data on the students experience of acquiring new vocabulary incidentally through playing CRPGs. It included Likert-Scale questions/statements (Q7-Q12).

   Section Three: Students' Experiences with Video Gaming and New Vocabulary Acquisition: this section aimed to collect further details on how students actually determined the meaning of unknown vocabulary in CRPGs and what type of vocabulary they were able to learn through CRPGs. It included multiple-choice questions (Q13-Q15).

   ### *3.2.3.2.   Focus Group*

- **Rationale and Aim:** the focus group aims to collect data on the vocabulary learning approaches adopted by EFL learners and their familiarity with CRPGs. Through this focus group, the researcher will also determine whether learners can actually acquire new vocabulary by playing video games, how they can figure out the meaning of unknown encountered vocabulary, whether incidental vocabulary learning can help

them retain vocabulary longer than intentional vocabulary learning, and their overall experience of acquiring vocabulary from video games.

- **Structure and Content:** the focus group consisted of (5) open-ended initial questions that served as conversation starters. The whole discussion and answers were recorded, coded, and interpreted by the researcher.

3.2.4. Population and Sample

The population of this study included Master Students of English (both specialities: Sciences of the Language and Literature and Civilization) at Biskra University. The researcher used two different sampling techniques:

1- The purposive sampling technique was used to extract the sample that consisted of 42 students (~10% of the population) to answer the questionnaire. Only students who claim to have played/are playing CRPGs asked to answer the questionnaire.

2- The voluntary-response sampling technique was used to extract 7 students to take part in the focus group discussion (which was held online via Messenger app). 7 students volunteered to be part of the discussion and contacted the researcher online.

The researcher aimed to gather data required to probe the hypothesis under investigation through this small-scale inquiry. The sampling techniques used in this study serve and are appropriate for the intended objectives. Even though a random sampling procedure would have been considerably representative, it would not serve the aims, objectives, and nature of this research.

3.2.5. Data Collection Procedures

Regarding the administration of the questionnaire, it was sent online to students who claimed to be "gamers" and have played CRPGs for a long period of time. Moreover, the focus group discussion was planned for after all 7 participants/volunteers joined the "Messenger app Group" and agreed to be part of the discussion. After the consent of the volunteers was acquired, the discussion took place online and lasted for about five hours.

3.2.6. Data Analysis Procedures

The researcher intends to use the descriptive approach to analyse the collected data from the questionnaire. The qualitative data collected from the focus group was decoded, analysed, and interpreted according to codes generated by the researcher.

3.3. The Results

3.3.1. Section One: The Students' Questionnaire

3.3.1.1. Questionnaire Piloting

The questionnaire piloting process was done through three tests/steps:

1. Consulting with teachers/experts before the questionnaire was submitted: The questionnaire structure (order and sequence) and the questions' nature (type and content) were examined by two teachers at Biskra University. The type of questions was changed. The questions were divided into three groups; each group revolved around one element.

2. Sending the preliminary questionnaire to up to 4-5 students: 5 students received the preliminary questionnaire. Their answers were received and examined by the researcher. The 7 students were asked whether they found any difficulties in reading, understanding, or answering the questions; their answers were negative.

3. Running a reliability test in SPSS: a reliability test was run on 13 items (Likert-scale results of 13 statements). Cronbach's Alpha was used to measure the internal consistency.

Cronbach's Alpha is a test for the reliability of psychometric tests such as psychological measurements of attitudes (i.e., how closely related a set of items are as a group). Generally, the percent in which the questionnaire considered reliable is 70% or more (that is, 0.700 or more). Any percent less than that, the research will not be reliable enough. The following test results were taken from SPSS:

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.736	.710	13

Figure 3.1. **Reliability Statistics via SPSS**

According to the reliability test results, Cronbach's Alpha value equals 0.736, which is above 0.700. Thus, after considering the reliability and validity of the questionnaire, now the questionnaire is considered reliable, and the results can be considered efficient.

3.3.1.2.   Data Analysis and Interpretation

- **Descriptive Statistics:**

The following data were generated using the statistical software SPSS statistics. The intervals of a four-point Likert scale are as follows:

1- Strongly disagree (represented by 1): 1.0-1.75.

2- Disagree (represented by 2): 1.75-2.50.

3- Agree (represented by 3): 2.5-3.25.

4- Strongly agree (represented by 4): 3.25-4.0.

Section One: Students' Vocabulary Levels and Learning Experiences

Statements	N	Min.	Max.	Mean	Std. Deviation
Vocabulary is important in language learning.	42	1	4	3.23	.958
Learning English vocabulary is difficult.	42	1	4	2.31	.643
You are satisfied with your English vocabulary size.	42	1	4	2.67	.687
You encounter difficulties in self-expression in English.	42	1	4	2.48	.943
You often forget the vocabulary you learn in the classroom.	42	1	4	2.69	.811
You spend enough time learning vocabulary in autonomy.	42	1	4	2.57	.941

Note: 4 strongly agree, 3 agree, 2 disagree, 1 strongly disagree.

Table 3.1. **Descriptive Statistics of Section One (the dependant variable)**

According to descriptive statistics of section one, the means (which represent the most chosen answers of each question) of Q1, Q2, Q3, Q4, Q5, and Q6 are 3.23, 2.31, 2.67, 2.48, 2.69 and 2.57, respectively. That is, the majority of students agree that:

1- Vocabulary is important in language learning.

2- Learning English vocabulary is not difficult.

3- They are satisfied with their vocabulary size.

4- They do not always encounter difficulties in expressing themselves in English.

5- They often forget the vocabulary they learn in the classroom.

6- They spend enough time learning vocabulary in autonomy outside of the classroom.

Section Two: Students' Attitude towards Learning English Vocabulary Through CRPGs

Statements	N	Min.	Max.	Mean	Std. Deviation
You play CRPGs frequently in your free time.	42	2	4	3.60	.544
It is sometimes necessary to know the meanings of words used in CRPGs	42	1	4	3.12	.705
You learn new vocabulary incidentally by playing CRPGs.	42	2	4	3.53	.552
You can guess the meanings of unknown words in video games without using a dictionary.	42	2	4	3.31	.634
You can easily remember the vocabulary you learned from CRPGs.	42	2	4	3.26	.643
CRPGs provide extensive exposure to English.	42	2	4	3.19	.665

Note1: 4 strongly agree, 3 agree, 2 disagree, 1 strongly disagree.

Table 3.2. **Descriptive Statistics of Section Two (the independent variable)**

The descriptive statistics of section one show that the means of Q7, Q8, Q9, Q10, Q11, and Q12 are 3.60, 3.12, 3.53, 3.31, 3.26 and 3.19, respectively. That is, the majority of students strongly agree that:

1- They play CRPGs frequently in their free time (frequent gamers).

2- They learn new vocabulary unintentionally/accidentally while playing CRPGs.

3- They can guess/determine the meanings of unknown/unfamiliar words while playing a CRPG without using the dictionary.

4- They can easily remember/memorise the vocabulary they encountered in CRPGs.

Furthermore, the majority of students agree that:

1- Knowing the words' meanings is necessary while playing a CRPG.

2- CRPGs provide them with extensive exposure to English.

- **Data Interpretation:**

Section One:

Q1. Vocabulary is important in language learning.
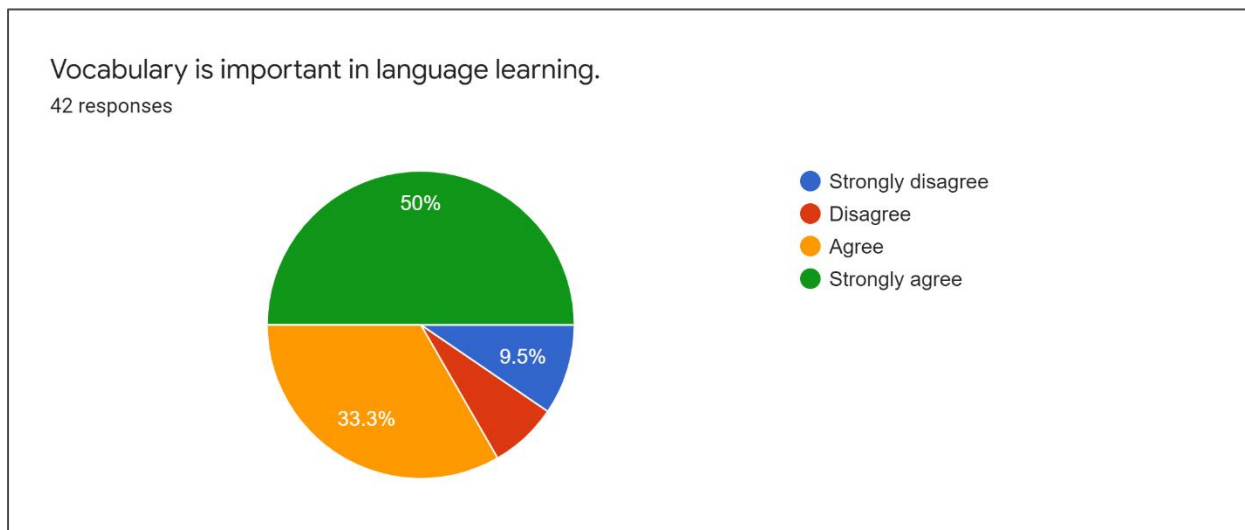
Figure 3.2. **The Importance of Vocabulary Knowledge**

As figure 3.2 shows, 83.3% of students' responses agreed that vocabulary is important/very important in language learning (50% strongly agree and 33.3% agree). 9.5% of students strongly disagreed, claiming that vocabulary is/were not important in language learning. The rest 7.1% of students disagreed, claiming that vocabulary knowledge is not "that important" in language learning.

We can observe that the majority of students are aware of the value of learning new vocabulary and its impact on their personal, academic, and professional English use. If students are already aware of the value of vocabulary learning, they have the motive and desire to acquire vocabulary. Students who agreed that vocabulary knowledge is important or very important are willing to learn and open to learn new English words whenever they have the opportunity to do so. Students who think that vocabulary is not important will probably ignore encountered unknown/new words instead of trying to determine their meanings.

Q2. Learning English vocabulary is difficult.
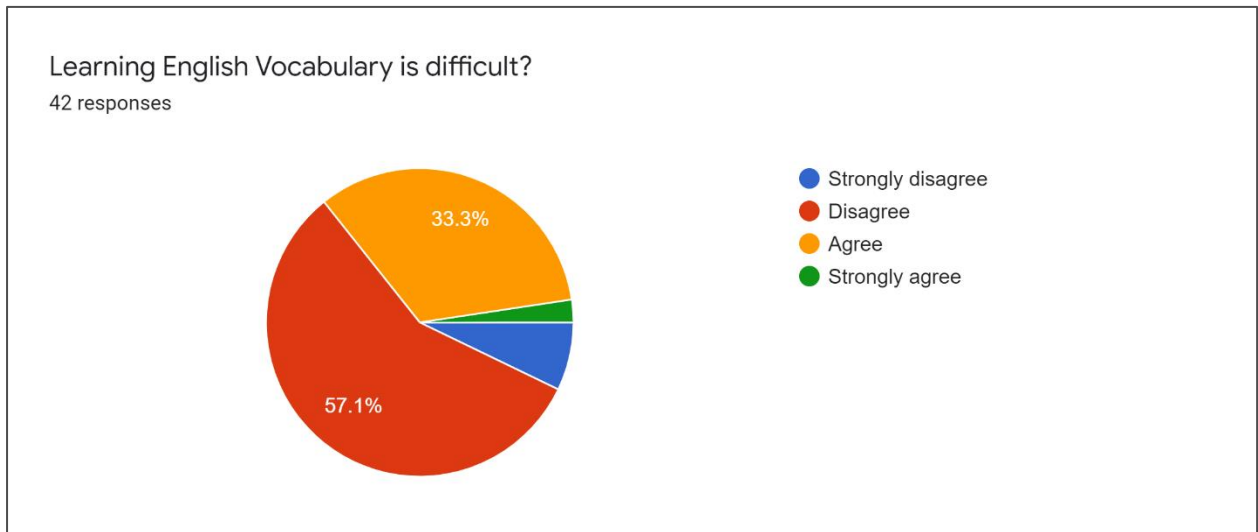
Figure 3.3. **English Vocabulary Learning Difficulty Level**

Concerning students' attitudes toward English vocabulary learning difficulty level, the majority of students' responses were divided into two parts: 57.1% of students disagreed, claiming that English vocabulary learning is not that difficult, while 33.3% of students, which is not a small percentage, actually agreed that the process of learning English vocabulary is difficult. The rest of students went to the rest of the two extremes with 7.1% strongly disagreeing and 2.4% strongly agreeing that Vocabulary learning is difficult.

The statistics indicates that even though the majority seems to think that English vocabulary learning is not difficult, a big portion of the sample thinks otherwise; EFL students at Biskra University do face difficulties in learning English vocabulary. In other words, they are not learning much inside the classroom, given that any unintentional learning of new English vocabulary is actually an incidental acquisition of the vocabulary. That is, a considerably big number of students have difficulties in intentional vocabulary learning.

Q3. You are satisfied with your English vocabulary size.
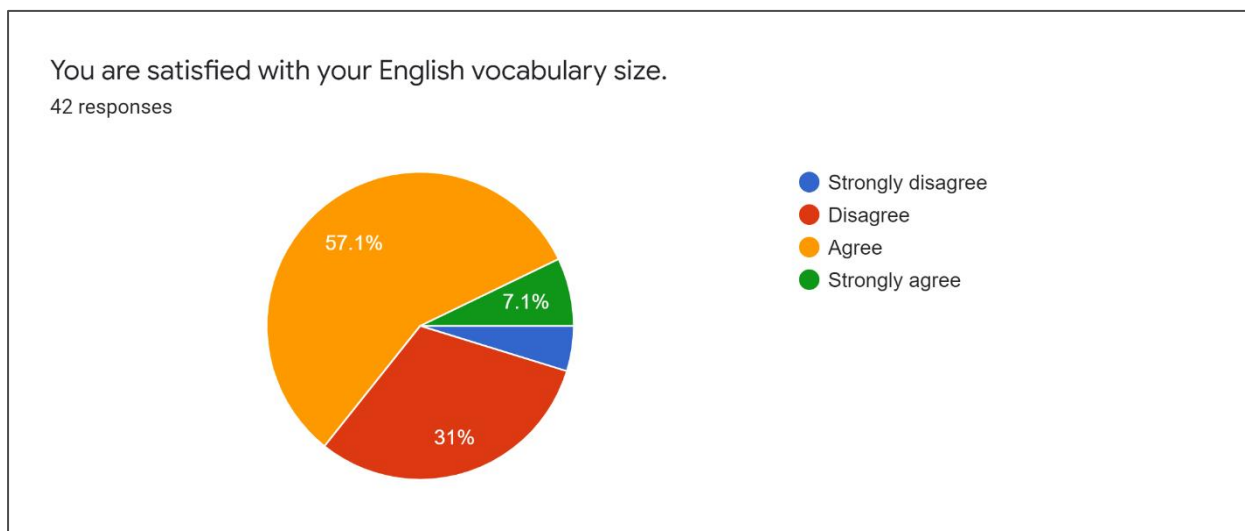
Figure 3.4. **Students' satisfaction with their vocabulary size**

The students' responses indicate that the majority of students seem to be satisfied with their vocabulary size (57.1% agreed that they are satisfied with their vocabulary size). However, a moderate number of students (resembles 31% from the total) actually disagreed, showing dissatisfaction towards their vocabulary size. The rest of the students' responses were: 7.1% strongly agreed and 4.8% strongly disagreed.

Even though the majority if students claimed that vocabulary learning is not difficult (Q2), the majority of students are satisfied with their vocabulary size, which is logically expected. On the other hand, we assume that students who think that vocabulary learning is difficult are less satisfied (not completely dissatisfied) with their vocabulary size than those who think vocabulary learning is not difficult. In other words, a moderate number of students think that intentional vocabulary learning is difficult; still, most of them are satisfied with their vocabulary size. This indicates that most students acquire vocabulary in a way other than the intentional learning, which is, probably, the incidental acquisition of vocabulary.

Q4. You often encounter difficulties expressing your thoughts, ideas, and feelings in English.

You often encounter difficulties expressing your thoughts, ideas, and feelings in English.
42 responses

- Strongly disagree
- Disagree
- Agree
- Strongly agree

35.7% 14.3% 16.7% 33.3%
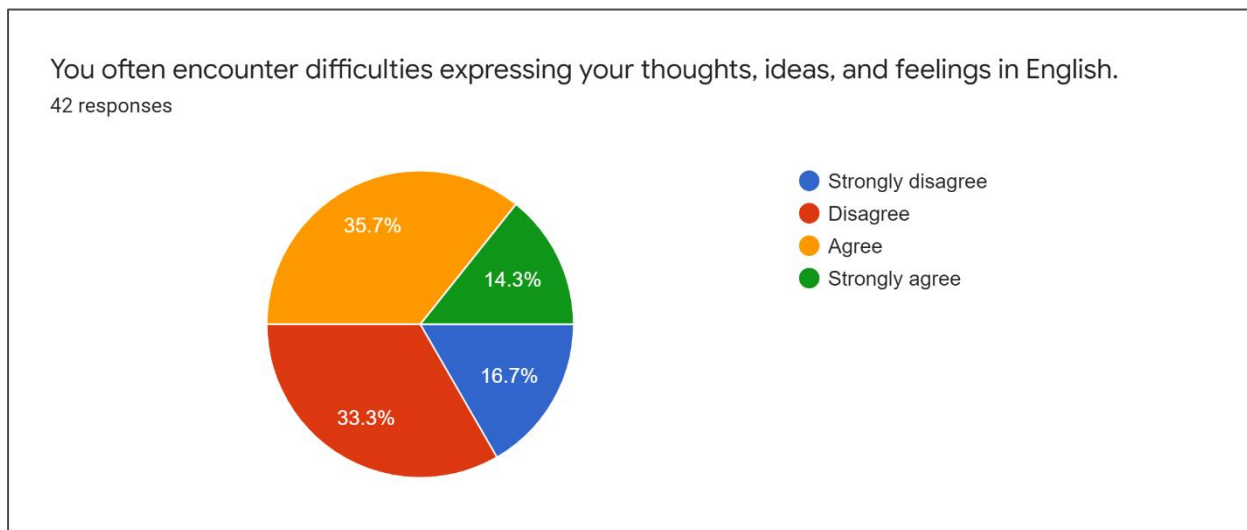
Figure 3.5. **Students' Difficulties in Self-expression in English**

The statistics shows that 50% (35.7% agreed and 14.3% strongly agreed) of students claimed that they face difficulties in self-expression in English, while the other 50% (33.3% disagreed and 16.7% strongly disagreed) of them claimed that they do not face difficulties in self-expression in English.

Some students encounter difficulties in self-expression in English even though the majority are satisfied with their vocabulary size. That is, the inability to express thoughts, ideas, and feelings in English (or the difficulty of self-expression in English) is not always due to vocabulary insufficiency; sometimes, it is simply due to anxiety.

Another possible explanation is that the vocabulary that the students allegedly know (given that they are satisfied with their English vocabulary size) is not usable in the classroom or have not been needed in the classroom. In other words, most of the students' vocabulary is not necessarily academic or needed in the academic context.

Q5. You often forget the English vocabulary you learn in the classroom.
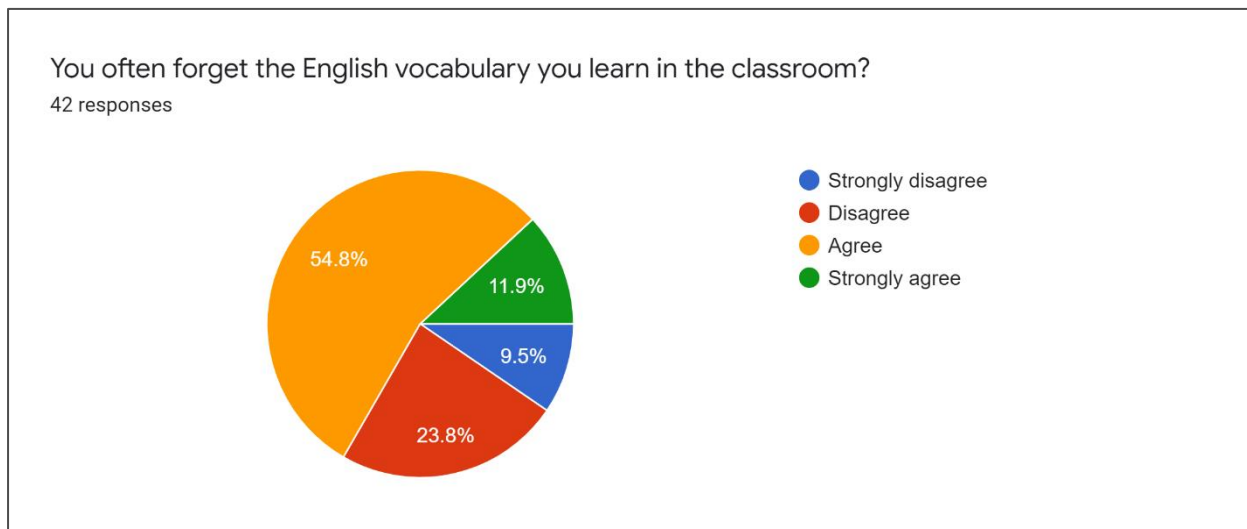
Figure 3.6. **Vocabulary Attrition among EFL Master Students.**

A total of 66.7% of students lean toward agreeing that they experience attrition of vocabulary learnt under classroom instruction (divided: 54% agreed and 11.9% strongly agreed). The rest of the students (resembling 23.8%) disagreed.

Typically, students use dictionaries to determine the meanings of new English words encountered in the classroom. They sometimes wait for their teacher to directly give the meaning of an unknown/unfamiliar word. That is, students, usually, learn vocabulary intentionally in classroom environment. According to research (check chapter one), intentional vocabulary learning is less efficient than incidental vocabulary acquisition.

The majority of students claimed that they forget most of the vocabulary they learn in the classroom; still, the majority of them are satisfied with their vocabulary size (Q3). Therefore, most of this vocabulary is either learnt outside the classroom using other methods or acquired incidentally through some kind of exposure to the target language (i.e., English).

Q6. You spend enough time learning English in autonomy out of the classroom.
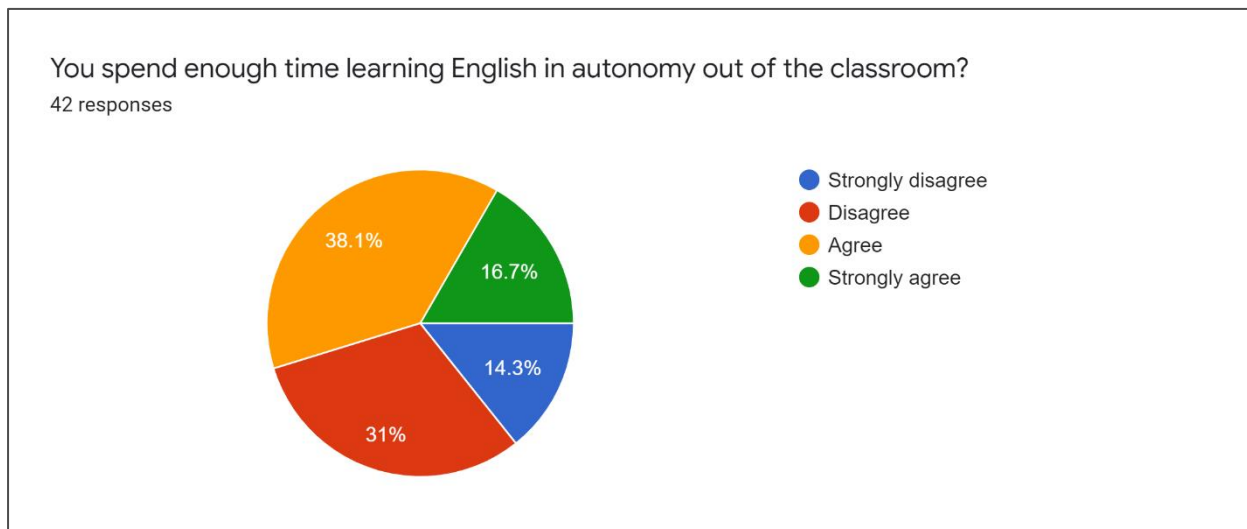
Figure 3.7. **Students' Autonomous Vocabulary Learning**

Statistics from figure 3.7 shows that 38.1% agreed that they spend enough time learning English vocabulary autonomously. 31% disagreed on the statement. 16.7% strongly agreed, and 14.3% strongly disagreed on the statement.

The majority of students claimed that they spend time learning English vocabulary out of the classroom. This could be either through vocabulary learning strategies (see chapter one), extensive exposure to target language, or even incidental vocabulary acquisition. However, 31% of students (resembling 13 out 42 students) claimed that they do not spend enough time learning or trying to enhance their proficiency level in English vocabulary.

Note: Students who spend a certain amount of time learning vocabulary in autonomy have probably unconsciously developed certain techniques and strategies to learn new vocabulary.

Section Two:

Q8. You play CRPGs frequently in your free time.
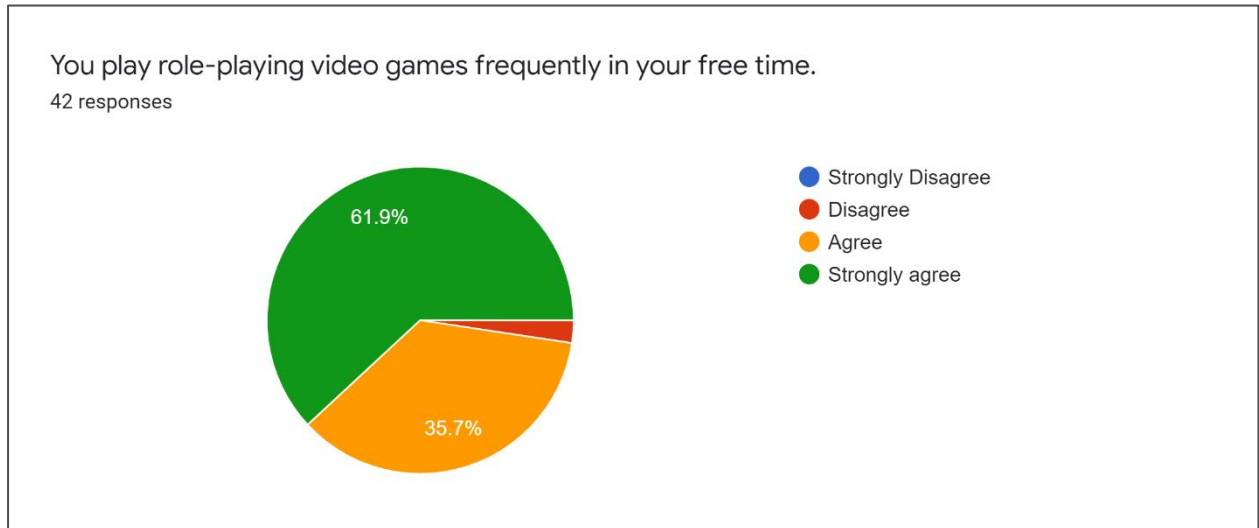
Figure 3.8. **Students' CRPG Playing Frequency**

As observed in figure 3.8, 97.6% of students agreed on the statement (with 61.9% of them strongly agreeing). Only one student (resembling 2.4% of the total) disagreed.

Almost all students, except one, agreed that they play CRPGs frequently in their free/out-of-school time. CRPGs take tens to hundreds of hours to be completed; that is, students' frequent playing of these video games is logically expected. Since CRPGs provide extensive exposure to English, their video gaming could correlate with their incidental vocabulary learning.

Q9. It is sometimes necessary to know the meanings of words used in CRPG.
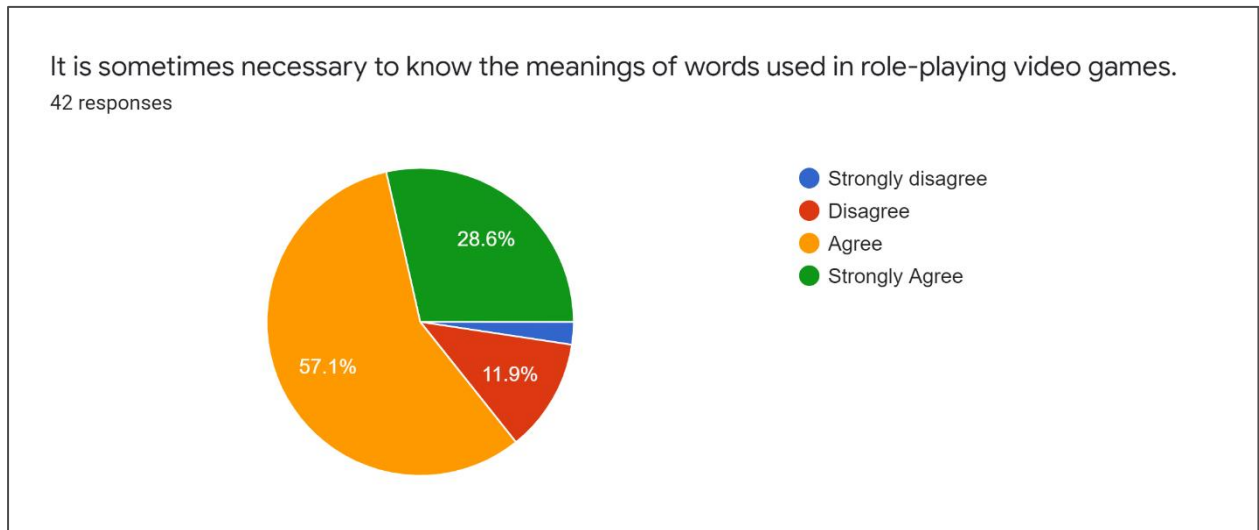
Figure 3.9. **The Role of Vocabulary Knowledge in Playing CRPGs**

The majority if students (resembling 57.1% of the total) agreed that it is necessary to know the meaning of words used in CRPGs; 28.6% strongly agreed. The rest of students disagreed with the statement (11.9% disagreed and 2.4% strongly disagreed).

The fact that language plays an important role in understanding the story, instructions, and choices of the game justifies why students claimed they actually learn new words from such video games (Q8). While playing, some instructions might be crucial in completing a quest or reaching a small objective in a game. This is what makes students try to determine the meanings of new encountered words or, at least, guess the meaning rather than just playing without paying any attention to any text/speech in the game.

On the other hand, some students claimed that knowing the language/word meaning in video games is not necessary. This can be due to two possible reasons: the games they played do not require vocabulary knowledge; conversely, they already have rich vocabulary and do not encounter any difficulties understanding the language used in video games.

Q10. You feel that you are learning new words accidentally by playing CRPGs.

You feel that you are learning new words accidentally by playing role-playing video games.
42 responses

- Strongly disagree
- Disagree
- Agree
- Strongly agree

54.8%
42.9%
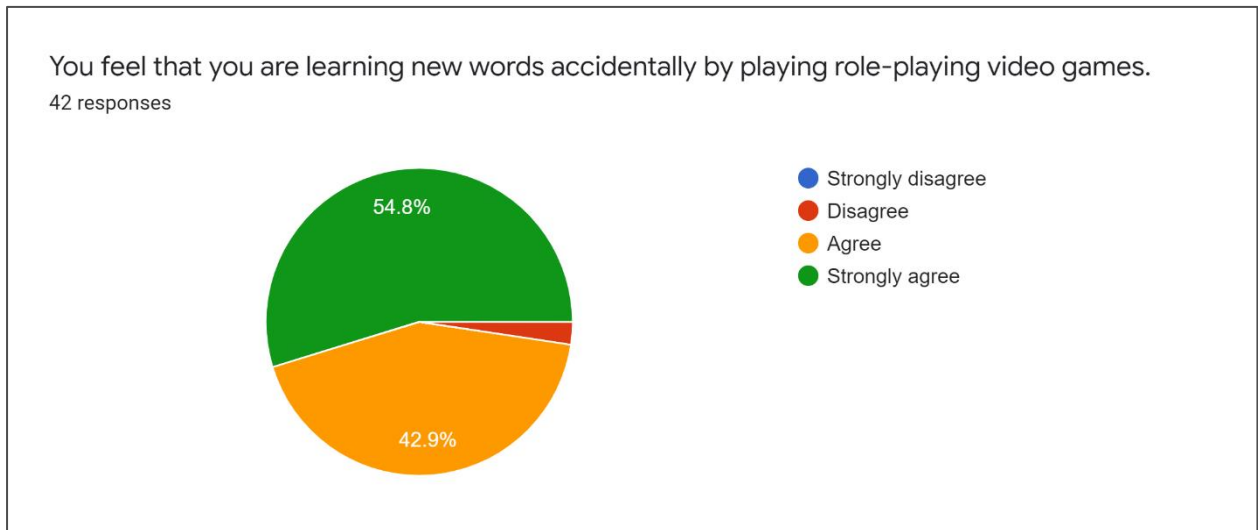
Figure 3.10. Incidental Vocabulary Acquisition in CRPGs

As observed in figure 3.10, a total of 97.7% of students leaned toward agreement with the statement: 54.8% strongly agreed and 42.9% agreed. The rest of students (resembling 2.3% of the total) disagreed.

Students play video games solely for entertainment. They do not intend to learn anything other than how to play the game. Still, the majority of them, if not all, claimed that they learn new vocabulary unintentionally. That is, acquiring English vocabulary is by-product of playing and enjoying CRPGs (further details in chapter two).

Although they did not intend to learn English vocabulary, according to Q9, they had to somehow determine the meanings of English words while playing. That is, students probably did not know that they were acquiring English vocabulary; they just did (further details in the following analyses).

Q11. You can guess the meanings of unknown words in video games without using a dictionary (most of the time).
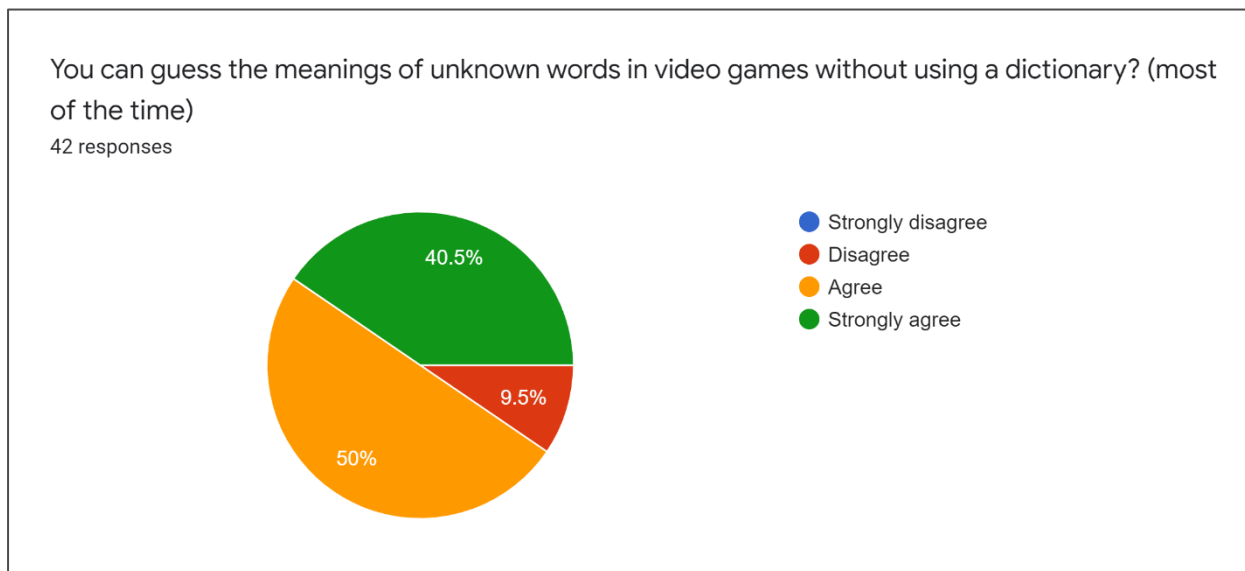
Figure 3.11. **Students' Ability to Determine Word Meaning while Playing CRPGs**

Figure 3.11 shows that the majority of students (resembling 50%) agree that they can determine the meaning of new/unfamiliar words encountered in CRPGs. 40.5% strongly agree with the statement. On the other hand, a small number of students (resembling 9.5% of the total) claimed that they cannot always guess the meanings of words without using a dictionary while playing CRPG.

According to what was discussed in chapter two, learners can determine the meanings of new English word through:

1- Using a dictionary.

2- Asking someone who knows the meaning of the word.

3- Using context clues (written and spoken language).

4- Using the audio-visual content in which a word was used.

The fact that the majority of students claim that they can play a video game, encounter new/unfamiliar words, and be able to determine and guess the meanings of these words right

without using a dictionary indicates that CRPGs contain either/both of the two elements listed above. Students either use context clues to understand the language in video games, audio-visual content provided by the game, or both. Students' ability to determine the meanings of new words through any of the two methods indicates that the context of these video games is lexical rich and linguistically comprehensible.

Q12. You can easily remember the vocabulary you learned from a CRPG.
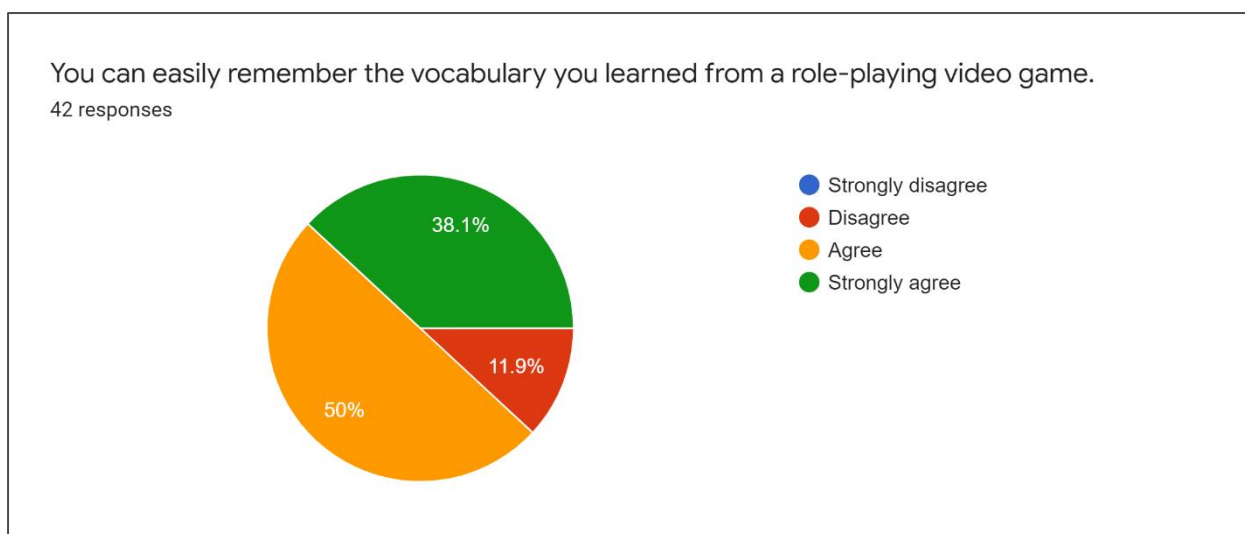
Figure 3.12. **Student's Retention of Vocabulary Learnt in CRPGs**

The statistics from figure 3.12 shows that 88.1% of students agreed that recalling/remembering the vocabulary learnt in CRPGs is easy (38.1% strongly agreed). Th rest of the students (resembling 11.9% of the total) disagreed.

As discussed in chapter one, the vocabulary that was acquired incidentally from the context seems to be buried in learners' minds. Unlike the vocabulary that was learnt intentionally (i.e., the learner intends to learn new vocabulary by performing a certain task such as using the dictionary, doing vocabulary exercises, using the drill technique, memorising lists of vocabulary…etc.)

The fact that gamers can memorise and recall the vocabulary they encountered in video games can be due to a couple of reasons; one of which is that they acquired vocabulary

incidentally (as mentioned in data interpretation of Q11, they determined the meaning from the context; they learned the words in their natural use/context).

Q13. CRPGs provide extensive exposure to English.

Role-playing video games provide extensive exposure to English (written in texts and passages, spoken by native speakers in game audio and by other players...).
42 responses
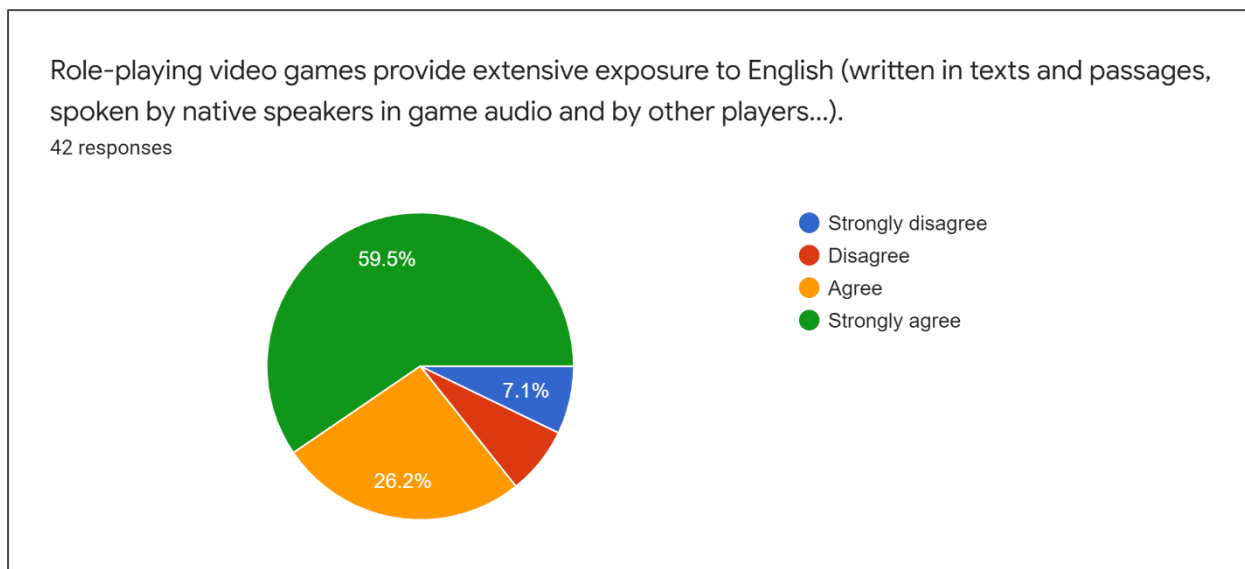
Figure 3.13. **The English Language Exposure Provided by CRPGs**

Q12's statistics show that the majority of students, resembling 59.5% who strongly agree and 26.2% who agree, agree that video games provide them with exposure to English. A small number of students disagreed (with 7.1% strongly disagreed and 7.2% disagreed with the statement).

One of the most important elements in a CRPG is the story events and the flow of the narrative; understanding the story of the game plays a crucial role in having a full gaming experience. Most video games are rated and labelled successful or unsuccessful depending on the story line and the plot the game revolves around. That is, video games (such as CRPGs) provide a lot of written and spoken content, not to teach English but for the sake of entertainment and quality. (See chapter two)

That is, by playing a video game, these students are constantly exposed to target language (English). They listen to dialogues between the game characters, read subtitles,

descriptions, and story-related information, and even speak/write in English when the game requires them to do so.

Section Three: Students' Incidental Vocabulary Acquisition through CRPGs

Q14. In your opinion, what is the best technique to learn new vocabulary?
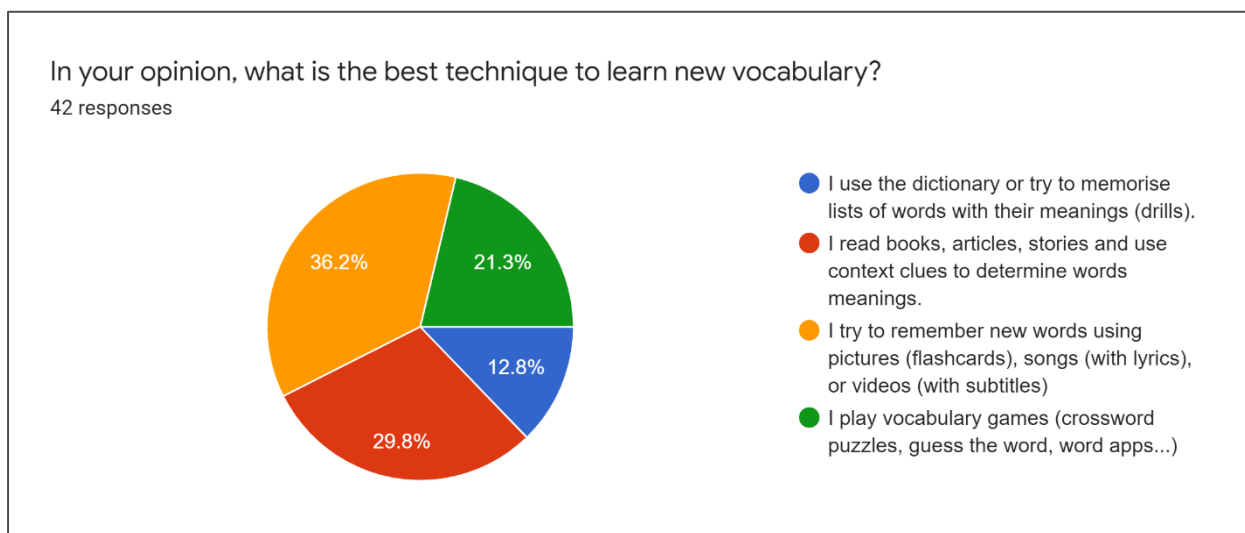
Figure 3.14. **Students' Strategies of Learning New Vocabulary**

Q14's statistics show that 36.2% of students (resembling the majority) use audio-visual materials (pictures, audios, videos…) to learn new English vocabulary. 29.8% prefer to read and determine word meaning through context clues. 21.3% opt for playing vocabulary games. The smallest number of students believe that the best technique to learn new English vocabulary is through the use of dictionaries.

According to these statistics, the majority of students find audio-visual content helpful in learning new vocabulary as it involves elements that can help in determining word meaning. A video game, such as a CRPG, contains audio-visual content plus interactivity. For instance, seeing an object and reading its name on screen helps one to memorise it; hearing the sound of a dog and reading a game instruction that says: "find a way to stop the dog from barking," helps one to know that the sound a dog makes is called "barking."

A large number of students opted for reading as a vocabulary learning technique. In fact, CRPGs contain massive amount of literature and linguistic content. For example, language is used in:

1- Game instructions (quest/mission objectives),

2- Collectibles (sometimes in a form of a paper or a book that contains certain information about a quest and can be found in the game world),

3- Dialogues (usually between NPCs),

4- The game world (e.g., while exploring the game world, one can notice the word "barn" written above the entrance of a red-and-white-painted building in a farm).

Q15. What will you do if you encounter an unknown word when you are playing a video game?
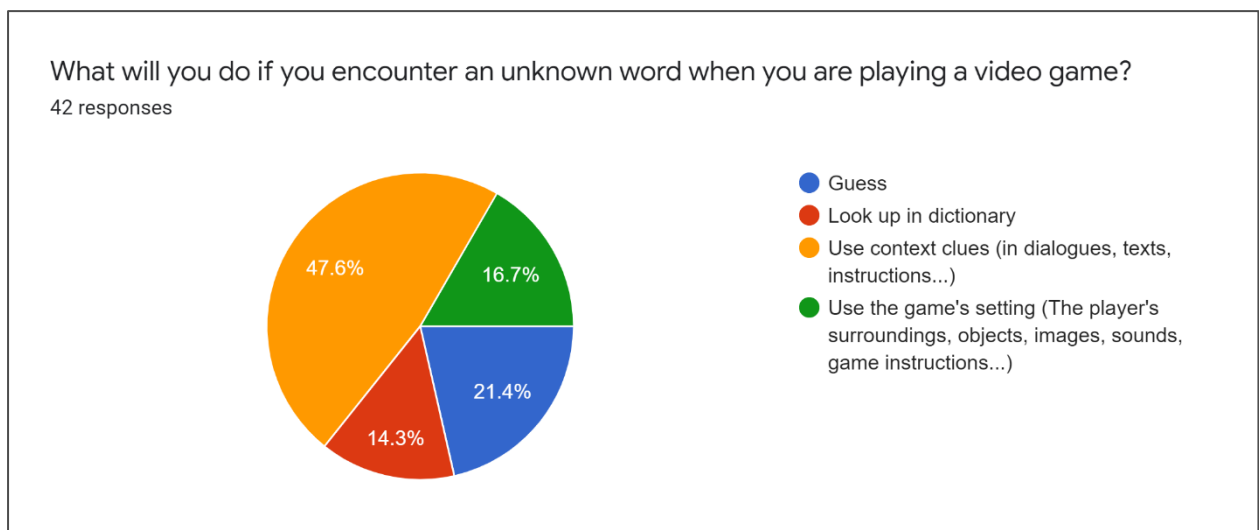
Figure 3.15. **Students' Techniques in Determining Word Meaning While Playing CRPGs**

The majority of students (resembling 47.6% of the total) choose to use linguistic context clues to determine the meaning of an unknown word encountered in the game. 21.4% try to guess the meaning of words. 16.7% use the game's setting. The smallest percentage resort to using the dictionary.

Even though one would expect that gamers probably use the game's setting (with images, sounds, videos, objects…) to know what a certain word means, the majority of students who play CRPGs claimed that they use the linguistic context instead. That's how linguistically rich these video games are. A large number of students rely only on guessing while playing video games to determine word meaning, and most of them claim that their guesses are most of the time correct. An example of this from a video game can be the following:

"Head to the woods, hunt a deer, skin it, and take its hide to the armorer."

This is a game instruction from a video game that requires the player to literally go to the woods, hunt a deer, skin it, collect its hide and bring it to an armorer. This sentence contains six words that the player can learn: to head (towards somewhere), woods, deer, skin, hide, and armorer. Using context clues the player can know that:

1- "To head" is a verb; heading towards some place means going to it.

a marker will pop up on the game map to show the player where "the woods" is; the player goes to the woods and realise that:

2- "Woods" can mean a forest.

If something is in the woods and can be hunted is usually an animal; the player searches for the animal and completes the objective. Upon completing the objective, the game gives positive feedback. Hence, the player realises that:

3- A "deer" is a brown animal that lives in the forest.

The first thing a hunter does after hunting an animal is to skin it. in addition, the game will prompt the interaction button and shows "skin" on the screen. When the player does the action, he realises that:

4- Skinning is the process of removing a [dead] animal's skin.

After finishing the fourth part of the mission, the player needs to take the "hide" to the "armorer." He/she is carrying an animal skin, should go to the place that marks the "armorer" on the map and, thus, realises that:

5- "hide" is an animal's removed skin.

6- The "armorer" is actually someone who makes armours using animal hide.

This is a scene that can be frequently seen in video games such as CRPGs. Players can learn some or all of these words incidentally just by playing a game, and this example can only take a few minutes.

Q16. What kind of vocabulary have CRPGs helped you learn?
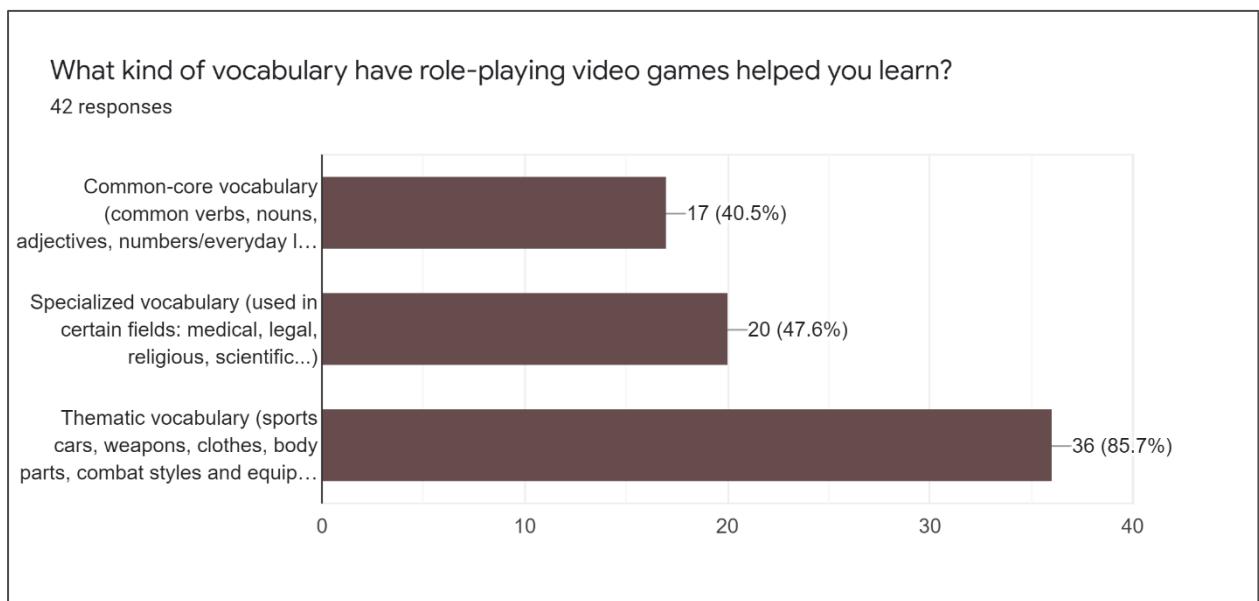
Figure 3.16. **The Type of Vocabulary that Can Be Acquired through CRPGs**

Figure 3.16 shows that 36 students (85.7%) claim that theme-specific vocabulary is a type of vocabulary that can be learnt through video games. 20 students (47.6%) claimed that specialized vocabulary can be learnt through this type of video games. Finally, 17 students (40.5%) claim that they were able to learn common-core vocabulary while playing this type of video games.

According to these statistics, all three types of vocabulary can be found and learnt in CRPGs. The most selected option was "thematic vocabulary" which consists of words related to the theme of the game. For instance, if a game is made to reflect medieval-times lifestyle, words such as "knight", "Victorian architecture", and "armour" are usually used. On the other hand, if a game represents/tells a life story of a doctor (the protagonist), specialised vocabulary, such as names of diseases, medical equipment, and names of medications is typically used in the game.

- **Summary**

As the data interpretation of section one, section two, and section three of the questionnaire indicates that CRPGs can be used to promote incidental acquisition of English vocabulary.

3.3.2. Section Two: The Participants' Focus Group Discussion

3.3.2.1. *Data Analysis and Interpretation*

Q1. For how long have you been a gamer?

Participants	Answers	Codes
P1	"I have been a gamer for more than 15 years."	P has been a gamer for more than three years
P2	"I used to play games since I was a child."	P has been a gamer for more than three years
P3	"I started playing games since 2010."	P has been a gamer for more than three years
P4	"I have been playing games for about nine years."	P has been a gamer for more than three years
P5	"Since 2015"	P has been a gamer for more than three years
P6	"At least four years now"	P has been a gamer for more than three years
P7	"For approximately 10 years"	P has been a gamer for more than three years

Note: P = participant.

Table 3.3. **The Amount of Time Participants Have Been Gamers**

The purpose of this question was to know for how long the participants have been gamers. The code I used was "if a participant has been a gamer for more than three years, he/she can provide useful/accurate information about incidental acquisition of English vocabulary through video gaming." According to research (check chapter two), people who have been gamers for more than three years and play video games frequently scored better in vocabulary tests than non-gamers and infrequent gamers. The results showed that all participants have been gamers for more than three years. Therefore, the data that will be extracted from their answers might be useful.

Q2. What type of games do you play?

Participants	Answers	Codes
P1	"I play all types of games: shooter, simulation, sports, rpgs, survival, horror…"	P plays CRPGs
P2	"I don't have a specific type; I play all types of games, specifically RPGs."	P plays CRPGs
P3	"Both offline and online games"	P probably plays CRPGs
P4	"I prefer story-based RPGs like uncharted 4, bloodborne, and RDR2…)"	P plays CRPGs
P5	"Offline and online RPGs."	P plays CRPGs
P6	"Horror survival RPGs"	P plays CRPGs
P7	"I'm not committed to only one genre of video games, yet if I had to choose, I'd say CRPGs/MOBA."	P plays CRPGs

Table 3.4. **The Type of Video Games Played by Participants**

The purpose of this question was to make sure at least more than half of the sample plays CRPGs. The used code is: "if students play CRPGs, the data that they provide about their experiences with learning vocabulary through gaming can be reliable." Table 3.4 shows that 6 out of 7 participants certainly play CRPGs, while one participant probably plays this type of games; however, it is not certain.

Q3. Has playing CRPGs helped you learn English vocabulary?

Participants	Answers	Codes
P1	"Yes, playing CRPGs helped me improve my English vocabulary."	P answer is positive
P2	"It absolutely did, significantly."	P answer is positive
P3	"Yes."	P answer is positive
P4	"It definitely helped me learn context specific terminology/vocabulary."	P answer is positive
P5	"Yes, it did help me learn English."	P answer is positive
P6	"Yes."	P answer is positive
P7	"Yes, it definitely did.'	P answer is positive

Table 3.5. **The Effect of Playing CRPGs on Participants' vocabulary Acquisition**

. How?

Participants	Answers	Codes
P1	"By listening to native speakers with several accents."	CRPGs provide oral vocabulary
P2	"Getting familiar with the game language makes it easier to understand the story; therefore, I learned new vocabulary by predicting and anticipating the meaning because I have to."	CRPGs provide exposure to English Understanding CRPGs narrative requires understanding the language.
P3	"Communicating with people from different countries."	CRPGs provide oral/written vocabulary
P4	"I learned many words that are related to different fields and subjects. I wouldn't have encountered them if I didn't play these games"	CRPGs provide subjects-specific/thematic vocabulary
P5	"Since I started playing games, I	CRPGs are lexical rich

Participants	Answers	Codes
	learned a great amount of vocabulary."	
P6	"I like to pay attention to characters talking, so I learned a lot of vocabulary from them."	CRPGs provide Oral Vocabulary
P7	"Communication is crucial; I have to understand and use the language.	CRPGs provide spoken and written vocabulary

Table 3.6. **How CRPGs Helped the Participants Acquire Vocabulary**

Q3 was composed of two parts: part one's purpose was to determine whether playing CRPGs helped participants acquire Vocabulary or not, while part two's purpose was to determine how exactly CRPGs helped them learn or what kind of vocabulary they were able to learn.

According to their answers, all 7 participants claimed that playing CRPGs actually helped them acquire new vocabulary. Their answer of "how?" indicates a few characteristics of CRPGs that can help those who get exposed to them learn new vocabulary. These characteristics are as follows:

1- CRPGs provide exposure to English vocabulary (oral and written).

2- Understanding a CRPG's story is crucial; one way to do so is through understanding the language used in the game (spoken, written, or both). CRPGs involve tasks that require vocabulary knowledge.

3- CRPGs are lexical rich (i.e., they may contain specialised/subject-specific, thematic, common-core vocabulary…).

Q4. How can you determine the word meaning in role-playing video games?

Participants	Answers	Codes
P1	"By understanding the context and body movement."	P acquired vocabulary incidentally
P2	"By guessing word meaning from the context and some already-known vocabulary helped me learn new vocabulary."	P acquired vocabulary incidentally
P3	"Sometimes I translate; sometimes I wait until I accidently learn the word when the game indicates that I completed an objective, which means that I guessed the word right."	P might have acquired vocabulary incidentally
P4	"I rely on images, videos and sounds from the game."	P acquired vocabulary incidentally
P5	"I pay attention to dialogues, subtitles, and other written information about the game story."	P acquired vocabulary incidentally
P6	"I just learned them because I could understand what they mean while being used in a natural context."	P acquired vocabulary incidentally
P7	"I read game instructions and use game controls for example: I learned the word 'crouch' because I literally had to crouch and walk under fallen tree"	P acquired vocabulary incidentally

Table 3.7. **The Techniques Used by the Participants to Determine Word Meaning**

The objective of this question was for the researcher to determine whether the participants have acquired vocabulary incidentally or intentionally and whether CRPGs can

promote incidental vocabulary learning or not. The results of the raw data coding indicates that all participants, except one, have incidentally acquired new vocabulary while playing video games. Therefore, this interpretation indicates that EFL learners can acquire new vocabulary through playing CRPGs.

Q5. Have you used some of these words in your academic essays/writings?

Participants	Answers	Codes
P1	"I used a lot of words I learned from these games in essays/writings… and I got good marks because of them."	Vocabulary learnt in CRPGs can be used in academic context.
P2	"Yes, sometimes I do some of these words, but it depends on the context and the type of words I learned."	Vocabulary learnt in CRPGs can be used in academic context.
P3	"I did; for example, I used the word rank, infection, quiver, epidemic, and mesmerising in some of my academic essays ."	Vocabulary learnt in CRPGs can be used in academic context.
P4	"I'm pretty sure I have used many words in writing."	Vocabulary learnt in CRPGs can be used in academic context.
P5	"Yes, I have used some of these words in my writings because I have to show how much my vocabulary is rich."	Vocabulary learnt in CRPGs can be used in academic context.
P6	"Yes, although some words are considered informal, I used a lot of these words in writing academic	Vocabulary learnt in CRPGs can be used in academic context.

Participants	Answers	Codes
	essays."	
P7	"Yes, I have. I used some of the words in my essay/writings to add my special touch."	Vocabulary learnt in CRPGs can be used in academic context.

Table 3.8. **Participants' ability to Use the Vocabulary Learnt in CRPGs in Academic Context**

As shown in table 3.8, all participants agreed that they have used the vocabulary they learned from CRPGs in academic writings. The purpose behind including this question is to know whether playing CRPGs can, in addition to helping students acquire vocabulary incidentally, be useful in the academic context. Therefore, the code that was used is as follows: "if the vocabulary that was learnt in CRPGs can be used in academic context, CRPGs can include vocabulary relevant to students' academic studies. Thus, master students can benefit from the vocabulary they acquire through playing CRPGs.

- **Summary**

The focus group discussion provided further details and additional data that can be used to test the research hypothesis. By going through the participants answers, a conclusion can be drawn through the analysis and interpretation of the data: CRPGs can be used to promote students' incidental vocabulary acquisition.

3.4. Summary of the Findings

The focus of this study was on the effectiveness of playing CRPGs for a period of time on students' incidental vocabulary acquisition. The sample was master students at Biskra

University. After collecting, interpreting, and analysing the data, we have deduced the following conclusions:

Data analysis and interpretation of the students' questionnaire and the focus group discussion confirmed that CRPGs can help students acquire new English vocabulary incidentally. Moreover, the findings revealed that CRPGs can provide learners with extensive exposure to English, which can reflect native speakers' natural use of the language. In addition, instead of being a passive learner, CRPGs give learners the opportunity to interact and actively learn new English vocabulary in autonomy. Playing this type of video games trains learners to use context clues and rely on previous vocabulary knowledge to learn new vocabulary; therefore, learners' use of dictionary can be gradually reduced. Furthermore, while playing video games, learners do not only learn how the word is pronounced but also how the word is spelled, and how it is used in different contexts. Given that learners acquired vocabulary incidentally, they were able to memorise it easily. Playing CRPGs can mimic real-life situations. That is, while playing, gamers are virtually immersed in these video games. They literally assume the role of the protagonist of the game; consequently, whatever the character experiences, the player experiences, too. In other words, the player experience life in a virtual world where the English language is used naturally, extensively, and contextually. This is one of the factors that helps learners acquire the language incidentally just like a child does his mother tongue: in a natural setting. Finally, even though games are considered an entertainment activity, with no use other than wasting one's time, this study proved that not only can learners acquire new English vocabulary through playing CRPGs, they can also use them in the academic context.

The data collected from the focus group discussion provided more detailed results. It shed light on the learners' experiences of acquiring vocabulary incidentally while playing

CRPGs. Moreover, it confirmed that conventional video games, such as CRPGs, can include academic, formal language that master students might find useful.

Conclusion

This chapter included the interpretation and analysis of the raw data collected through the students' questionnaire and the focus group discussion. The results and the findings allow to say that playing CRPGs has a positive effect on incidental vocabulary acquisition. Computer role-playing video games, if taken seriously and played effectively, grant the exposure, use, and practice of new English lexical items. The atmosphere of relaxation, entertainment, and curiosity this type of video games provides the learners with is the most engaging and immersive characteristics in the design of games. This type of games combines some of the most essential elements for incidental vocabulary acquisition to occur, including, motivation, task-induced activity, rich audio-visual content that tries to depict real-world settings, interaction, action outcomes and feedback, fantasy, and most importantly, extensive exposure and natural use the target language, namely, the English language.

General Conclusion

Being one of the major concerns for EFL learners and a necessity for their success in mastering the English language, vocabulary learning should not only be entirely exclusive to classroom setting; instead; vocabulary learning needs to be a daily routine. Classroom instruction is not always enough to provide students with the necessary exposure to new words. However, by incorporating Computer role-playing games into their free time, students acquire new vocabulary incidentally in a more enjoyable way. Computer role-playing games have rich linguistic content that can help students learn new words incidentally, which proved to be more natural and effective than intentional learning. For these reasons, Computer role-playing games are believed to be an effective strategy for EFL learners looking to improve their vocabulary outside the formal setting.

The present study was initially conducted to investigate the effect of playing computer role-playing games on the incidental acquisition of vocabulary. To achieve this aim, the hypothesis that playing computer role-playing games can help EFL students incidentally acquire new vocabulary was tested. The first two chapters in this study highlighted some of the necessary theoretical backgrounds that server as a basis in the analysis and interpretation of the collected data and the results as well as in synthesising the findings. The third chapter included the analyses of the data deduced from the questionnaire and the focus group discussion.

The findings of this study confirmed that EFL learners can incidentally acquire vocabulary while playing computer role-playing games. That is, this type of video games is an effective informal strategy to learn new English vocabulary. in addition, the results revealed that the participants are that these video games are helping them learn the language. In fact, they showed confidence in what they have been able to learn from video games so far.

The majority of participants agreed that computer role-playing games is an effective strategy to learn English vocabulary in an informal, yet engaging, setting.

Even though this study aimed to obtain as much reliable data as possible, it still had limitations. The concept of using video games as educational tools is still considered a bold idea. In the Algerian context, video games are still considered, by many, to be a purely-entertainment and diverse activity. Furthermore, this exact topic is still novel and has many questions that are yet to be answered.

Recommendations

According to what was discussed across this study, a set of recommendation are put forward. Although many still focus on grammar and consider structure more important, EFL teachers and learners should give more attention to vocabulary learning and raise awareness of its importance as it is a key for mastering the language. Learners should not rely solely on the English language exposure provided in the classroom; instead, they should look for other means to use and be exposed to the English as much as possible. EFL learners should use English in all their activities, inside or outside the classroom, be it reading, watching movies, or playing video games.

Further research can be conducted on the effect of other types and genres of video games on other aspects of English language learning, especially speaking, fluency, and pronunciation. The diversity, abundancy, and popularity of video games nowadays gives us the opportunity to conduct experiments and put forward more hypotheses that might unravel precious discoveries.

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Appendices

Appendix 1: The Students' Questionnaire

Dear students,

You are kindly requested to answer this questionnaire that will serve as a source of data for analysis. It is designed to investigate the correlation between video gaming and incidental vocabulary acquisition. Your contribution is of a great value and importance, so we would like you to answer this questionnaire thoroughly.

Thanks in advance!

Section One: Vocabulary Learning

Q1. Vocabulary is important in language learning.

Strongly disagree ☐ Disagree ☐ Agree ☐ Strongly Agree ☐

Q2. Learning English vocabulary is difficult

Strongly disagree ☐ Disagree ☐ Agree ☐ Strongly Agree ☐

Q3. You are satisfied with your English vocabulary size.

Strongly disagree ☐ Disagree ☐ Agree ☐ Strongly Agree ☐

Q4. You often encounter difficulties in expressing your thoughts, ideas, and feelings in English.

Strongly disagree ☐ Disagree ☐ Agree ☐ Strongly Agree ☐

Q5. You often forget the English vocabulary you learn in the classroom.

Strongly disagree ☐ Disagree ☐ Agree ☐ Strongly Agree ☐

Q6. You spend enough time learning English in autonomy.

Strongly disagree ☐ Disagree ☐ Agree ☐ Strongly Agree ☐

Section Two: CRPGs and Incidental Vocabulary Acquisition

Q7. You play role-playing video games frequently in your free time.

Strongly disagree ☐ Disagree ☐ Agree ☐ Strongly Agree ☐

Q8. It is sometimes necessary to know the meanings of words used in role-playing video games.

Strongly disagree ☐ Disagree ☐ Agree ☐ Strongly Agree ☐

Q9. You feel that you are learning new words accidentally by playing role-playing video games.

Strongly disagree ☐ Disagree ☐ Agree ☐ Strongly Agree ☐

Q10. You can guess the meanings of unknown words in video games without using a dictionary (most of the time)

Strongly disagree ☐ Disagree ☐ Agree ☐ Strongly Agree ☐

Q11. You can easily remember the vocabulary you learned from a role-playing video game.

Strongly disagree ☐ Disagree ☐ Agree ☐ Strongly Agree ☐

Q12.Role-playing video games provide extensive exposure to English (written in texts and passages, spoken by native speakers in game audio and by other players…)

Strongly disagree ☐ Disagree ☐ Agree ☐ Strongly Agree ☐

Section Three: Students' Experiences with Video Gaming and New Vocabualry Acquisition

Q13. In your opinion, what is the best technique to learn new Vocabulary.

1- I use the dictionary or try to memorise lists of words with their meanings (drills). ☐

2- I read books, articles, stories and use context clues to determine words meanings. ☐

3- I try to remember new words using pictures (flashcards), songs (with ☐

lyrics), or videos (with subtitles)

4- I play vocabulary games (crossword puzzles, guess the word, word ☐

apps...)

Q14. What will you do if you encounter an unknown word when you are playing a video

game?

1- Guess ☐

2- Look up in dictionary ☐

3- Use context clues (in dialogues, texts, instructions...) ☐

4- Use the game's setting (The player's surroundings, objects, images, ☐

sounds, game instructions...)

Q15. What kind of vocabulary have role-playing video games helped you learn?

1- Common-core vocabulary (common verbs, nouns, adjectives, ☐

numbers/everyday language...)

2- Specialized vocabulary (used in certain fields: medical, legal, religious, ☐

scientific...)

3- Thematic vocabulary (sports cars, weapons, clothes, body parts, ☐

combat styles and equipment, history, diseases, medical equipment,

building materials, furniture...)

Appendix 2: The Participants' Focus Group Initial Questions.

Q1. For how long have you been a gamer?

Q2. What type of games do you play?

Q3. Has playing CRPGs helped you learn English vocabulary?

Q4. How can you determine the word meaning in role-playing video games?

Q5. Have you used some of these words in your academic essays/writings?

ملخص

تلعب معرفة المفردات دورًا أساسيًا في تعلم اللغة الثانية / الأجنبية وإتقانها. في ضوء أهمية المفردات، تحاول الأطروحة الحالية التحقيق في تأثير لعب ألعاب الأدوار الحاسوبية على التعلم العرضي لمفردات اللغة المستهدفة. في هذا الصدد، تم طرح فرضية بحثية رئيسية مفادها أن لعب ألعاب الكمبيوتر تساعد طلاب اللغة الإنجليزية كلغة أجنبية في جامعة بسكرة على تعلم المفردات بشكل عرضي. من أجل جمع البيانات ذات الصلة لاختبار فرضية البحث، تم اختيار نهج متعدد الأساليب. تم استخلاص البيانات النوعية والكمية من نتائج استبيان الطلاب ومناقشة مجموعة التركيز. ومن ثم، بناءً على النتائج، تم تأكيد فرضية البحث في أن ألعاب لعب الأدوار الحاسوبية تلبي بالفعل متطلبات طالب اللغة الإنجليزية لتعلم مفردات إنجليزية جديدة بالمصادفة أثناء الاستمتاع بنشاط ممتع وهادف. لذلك، يوصى للطلاب / المتعلمين والمدرسين (خاصة أولئك المهتمين بألعاب الفيديو) بإيلاء المزيد من الاهتمام لهذا النوع من ألعاب الفيديو والاعتراف بإمكانية استخدامها كأسلوب / طريقة غير رسمية لتعلم اللغة الإنجليزية عامة وإثراء مخزون المفردات اللغوية خاصة.