



People's Democratic Republic of Algeria
Ministry of Higher Education and Scientific Research
Mohamed Khider University of Biskra

MASTER THESIS

Faculty of Letters and Foreign Languages

Department of English Language and literature

Sciences of the language

Submitted by

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**Using Online Video Games to Promote EFL Learners' Speaking Fluency: The Case of
Second Year Students of English at Biskra University**

A Dissertation Submitted to the Department of English and Literature in Partial fulfillment
of the Requirements for the Master's Degree in Sciences of the Language

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June 2023

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DECLARATION OF INTEGRITY

I, **Djaghoubi Mohamed Aiman**, solemnly declare that the dissertation titled "**Using Online Video Games to Promote EFL Learners' Speaking Fluency: The Case of Second Year Students of English at Biskra University**" submitted to the Department of the English language and Literature at Biskra University is entirely my own work, free from plagiarism, and has not been submitted to any other educational institution. I have appropriately acknowledged and cited all sources used, and I have conducted myself with academic integrity throughout the process. I understand the severe consequences of academic misconduct and affirm the authenticity of my dissertation.

Signature

AKNOWLEDGMENT

I would like to express my deepest gratitude and sincere thanks to my supervisor

***Dr. Meddour Mostafa** for His guidance, encouragement, and above all patience and understanding.*

I would like to acknowledge and give my warmest thanks to my friend and my fellow Candidates

***Nour, Roumaissa, Hiba, Ikram and Anfel** for their help and precious advice.*

I must acknowledge all participants, who have willingly shared their precious Time and for collaboration in the duration of this study.

I would like to offer immense gratitude to my dear parents for their love, constant help, encouragement and support.

DEDICATION

*I would like to dedicate this work to my mother, my
father, my siblings, and my loved ones.*

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

My family, friends, and teachers.

ABSTRACT

The study investigates the use of Online Video Games to Promote EFL students Speaking Fluency. The aim is to explore the potential benefits of incorporating gaming elements into language learning environments. In this regard, one main research hypothesis has been put forward that playing Online Video Games helps improving EFL students speaking fluency at the University of Biskra. Employing a quasi-experimental research design, a mixed-method approach was utilized, incorporating both quantitative and qualitative data collection methods. The study employed a pretest/posttest design, where participants' speaking fluency was assessed before and after engaging in gaming sessions. The research process involved three main tools. Firstly, a preliminary questionnaire was administered to identify and select an appropriate sample for the study. Following the selection of the sample, participants underwent a pretest to gauge their initial speaking fluency levels. Subsequently, an experimental intervention was implemented in the form of gaming sessions. Participants engaged in Online Video Games designed specifically to enhance their speaking skills. A posttest was conducted to assess the participants' speaking fluency after the gaming sessions. The results of the data analysis indicated that there was insufficient evidence to reject the null hypothesis. It suggests that the online video game intervention did not lead to a significant improvement in EFL students' speaking fluency. The findings of this study have implications for language educators and curriculum designers.

Keywords: Speaking fluency; Online Video Games; Pretest/posttest design; EFL students; Statistical analysis.

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GENERAL

INTRODUCTION

GENERAL INTRODUCTION

Ever since English became a lingua franca in all areas from business, science, diplomacy, information technology and other parts of our everyday lives, people from around the world have been learning it as a way to open as many doors in life as possible. From job opportunities to holiday prospects to increasing the amount of potential entertainment, English has become an integral part in the lives of many people across the globe. After World War 2, with the rise of the United States as a world superpower and the advent of new communication channels, the influence of English is felt everywhere. The most important facet of the American culture that let English infiltrate the world was the entertainment industry. From Hollywood to the various music outlets, the American dream spread out, bringing with it the English language. One entertainment area that became a steady supplier of non-native English speaker to the world was the development of video games. Video gaming was not always a way to acquire language, since the very first video games were made out of old radar equipment designed to simulate a game of table tennis. Until the mid-1980s, video games were nothing more than a bunch of shapes shooting or moving towards other shapes on a black and white screen, with barely any depth to the gameplay other than being a reflex test. They could not contain any narrative because of their lack of attractive graphics and a plot. Gradually, however, games have become more and more complex both in terms of gameplay and story, and as such have become phenomenal sources first for passive, but later increasingly for active language interaction. Thus, they have become a multimillion dollar business.

In the past few decades, more and more people, started playing video games and many video games characters became cultural icons. The technology of video gaming has advanced far enough to be compared to movies, cartoons and books in their capacity to tell an engaging story, to be well presented and directed. Video games have two important advantages over these mediums: interactivity and the facilitation of communication. Facilitation of communication is especially important in increasing the proficiency of a non-native English speaker. Most games tend to have either vast internal lore or a variety of systems interacting within the larger gameplay systems. Both of these factors create a need for players to flock unto various communication platforms to discuss the games or to find out how to get past a difficult level, thus facilitating language use. The language of international communication is, of course, English.

Another facet of communication is the reliance of certain games to be played by multiple people. This has the benefit of having players engaged in “on the spot” communication, especially in regard to teamwork-focused games like tactical first person shooters. These games require not only great reflexes and tactical thinking, but also communication skills and verbal coordination with other players. In large part due to these advantages, video gaming has become the latest domain of English as the world communication tool, and it seems appropriate, therefore, to try and analyse the influence video games have on learning English, and especially the speaking aspect of the language.

I. Statement of the problem

Many English as a Foreign Language (EFL) students struggle to improve their speaking fluency due to lack of opportunities to practice outside of the classroom. With the increasing

popularity of Online Video Games, it is worth exploring whether they can be utilized as a tool to enhance EFL students' speaking fluency.

Research has shown that using video games in language learning can be beneficial, as they provide a fun and engaging platform for students to practice their language skills (Jung, Lee, & Lee, 2020). Additionally, Online Video Games allow students to interact with native and non-native speakers of the target language in a low-stakes environment, which can help reduce anxiety and promote confidence in speaking (Thorne, 2013).

However, there is limited research on the effectiveness of using Online Video Games specifically for promoting EFL students' speaking fluency. Therefore, this study aims to investigate whether Online Video Games can be a viable tool for improving EFL students' speaking fluency and to identify any potential challenges or limitations in using this approach.

This research project will be an attempt to explore the impact of Online Video Games on prompting students' speaking fluency.

II. Research question

The goal of this study is to answer the following research questions:

1. Does the use of Online Video Games enhance EFL students' speaking skills and fluency?
2. How can Online Video Games in-game Voice Chat motivates and increase the spoken language amongst players?
3. At what extent EFL learners can improve their speaking fluency through playing Online Video Games?

III. Statement of hypotheses

This Research was pursued under the assumption that Online Video Games have considerable role in promoting EFL students' the speaking fluency. Hence

- I. We hypothesize that if EFL students use play more Online Video Games, their speaking skills and fluency will improve.
- II. Online Video Games has a positive impact on the player speaking fluency skills.

IV. Aims and objectives

This study is aimed at assessing the impact of Online Video Games, as well as the effects of In-game Voice Chat on the progress of the EFL learners' speaking fluency.

The objectives that were planned for this Study are the following:

- A multiplayer game is to be selected that contains all the required tools to conduct an experiment.
- Once a game has been selected that fits the criteria of having the necessary tools, an experiment must be designed.
- Participants who can play the selected game and that can use the communication tools needs to be recruited.
- After data has been gathered, the results will have to be analyzed and evaluated.

V. Significance of the study

The study investigates the impact of Massively Multiplayer Online Role-Playing Games on improving speaking fluency is significant for several reasons:

- **Language Learning:** Many Online Video Games involve communicating with other players in real-time, which can help players improve their speaking fluency by practicing using the language in a natural and immersive setting.
- **Motivation:** Online Video Games can be highly motivating for language learners, as they provide a fun and engaging way to practice speaking and listening skills.
- **Increased Confidence:** By participating in Online Video Games, players can become more confident in their speaking abilities, which can transfer to real-life situations.
- **Cross-Cultural Communication:** Online Video Games often bring together players from different countries, providing opportunities for language learners to practice speaking with native speakers and learn about different cultures.
- **Enhanced Interpersonal Skills:** Online Video Games require collaboration and communication between players, which can help improve interpersonal skills such as active listening, giving and receiving feedback, and problem-solving.

In general, the research on how Online Video Games can enhance speaking fluency illustrates how digital technologies have the capability to aid language learning. It also underscores the requirement for more exploration in this field to completely comprehend the possible advantages and drawbacks of this approach.

VI. Research design

Quasi-Experimental Design: This design was more suitable for the research since there was a series of monitored gaming sessions with the targeted group. There were some factors that were out of reach to control which can affect the experiment.

VII. Study limitations

During the investigation, some limitation occurred along the way, which unfortunately hindered the task at hand. Namely, we encountered a lack of the sample cooperation during the experiment, time shortage and the targeted group's unfamiliarity with the chosen Video Game.

VIII. Study structure

The present study will be organized into distinct and well-defined sections. The first chapter, titled "General Introduction," will offer a comprehensive overview of the subject matter, which will encompass research questions, hypotheses, and other relevant aspects. The subsequent chapter, named "Literature Review", will focus on analyzing and offering an extensive evaluation of the previously discussed research studies.

Following that, the fourth chapter, titled "Research Methodology", will describe the data collection and analysis approaches that were utilized to arrive at a conclusion. Ultimately, the fifth chapter, named "Results and Discussion Analysis," will provide a summary of the outcomes and analyses.

LITERATURE REVIEW

CHAPTER ONE: LITERATURE REVIEW

Introduction

This chapter presents a comprehensive literature review on the topic of speaking fluency, with a particular focus on its relation to Online Video Games in the context of EFL learning. Speaking fluency is a crucial aspect of language acquisition, as it reflects a learner's ability to communicate effectively and confidently in a target language. Over the years, researchers have explored various factors influencing speaking fluency, including linguistic, cognitive, and sociocultural aspects.

This literature review is divided into two parts. The first part focuses on speaking fluency, examining research on its definition, measurement, and theories of development. The goal is to provide a comprehensive overview of speaking fluency in language learning. The second part explores the connection between Online Video Games and EFL students' speaking fluency. It investigates studies on the impact of video games on speaking fluency, the benefits and challenges of using them for language learning, and how specific game features contribute to fluency development. Ultimately, this review aims to enhance understanding of how Online Video Games can effectively improve EFL students' speaking fluency and create engaging language learning experiences

2. Part one: speaking fluency

English as a Foreign Language (EFL) learners face a great challenge when it comes to speaking fluency. Fluent speaking is essential for effective communication in everyday life, and

it also plays a vital role in academic success. Therefore, the study of EFL learners' speaking fluency has received increasing attention in recent years. Several studies have explored various factors that contribute to the development of speaking fluency, including individual learner characteristics, language instruction, and language input. These studies have aimed to identify the most effective strategies for improving speaking fluency among EFL learners and have provided valuable insights into the complexities of fluency development in a foreign language.

2.1. Literature Review and Definitions

In the 1970s, researchers focused on fluency in language studies due to the communicative movement, which emphasized the importance of communicating meaning over language structure and the ability to use language fluently in specific situations (Sadeghi & Yarandi, 2014). However, despite the abundance of research on fluency, there are various definitions of the term.

For example, Brumfit (1984) believed that fluency should be considered as natural language use, while Faerch, Haastrup, & Phillipson (1984) considered it as part of communicative competence. Richards et al. (1985) defined fluency as the features that make speech natural and normal, including the use of pausing, rhythm, intonation, stress, rate of speaking, and interjections. Meanwhile, Lennon (1990) introduced two definitions for speech fluency - a general sense related to global oral proficiency and a narrower sense related to a component of oral proficiency.

Hector (1991) defined fluency as speaking rapidly and well in daily speech, while in language learning and teaching, it means speaking rapidly and smoothly without necessarily being grammatically correct. Schmidt (1992) believed that fluent speech is automatic and does

not require much attention or effort. Hedge (1993) defined fluency as the ability to link units of speech together easily and without undue hesitation or strain.

Thornbury (2000) claimed that fluency relies on a stored bank of memorized chunks and the ability to retrieve these chunks quickly. Nunan (2003) defined fluency as the extent to which speakers use language quickly and confidently without hesitations or unnatural pauses. Kormos (2006) considered fluency from two angles - global oral proficiency and the ability to produce smooth talk within the time constraints of real-life communication.

Ultimately, fluency is a complex concept with many definitions, but it generally refers to the ability to use language naturally, confidently, and smoothly in various contexts (Sadeghi & Yarandi, 2014).

2.1.1. Speaking and Oral Interaction

In 1983, Brown and Yule made a distinction between written and spoken language (Nunan, 1989). They argued that spoken language is characterized by short utterances or "fragments." In communication situations, speakers use language that is characterized by:

- Repetition between one speaker and another ;
- Overlaps between one speaker and another ;
- Non-specific references: for example “they tend to say ‘thing’, ‘it’, and ‘this’ rather than the left-handed monkey wrench or the highly perfumed French poodle on the sofa.”(Nunan, 1989, p. 24) ;
- Loosely organized syntax ;
- Non-specific words and phrases ;
- The use of fillers: like; well, oh, uh-uh .

Brown and Yule (1983) claimed that loosely organized syntax, non-specific words and phrases, and the use of fillers: like; well, oh, uh-uh make the spoken language less formal than other uses of language such as the written one.

2.1.2. Research in the Field of Speaking Skill

Speaking for Butler et al. (2000, p. 2 as cited in Abdelrahman, 2013, p. 79) is “the use of oral language to interact directly and immediately with others”. Research in the field of speaking skill is a hard mission, since it is an interdisciplinary phenomenon, Bygate (2002, p. 27) asserted:

The study of speaking - like the study of other uses of language is properly an interdisciplinary field. It involves understanding the psycholinguistic and interpersonal factors of speech production, the forms, meanings and processes involved, and how these can be developed. (Pawlak, 2011, p. 3)

Learning also, how to speak is a difficult task. In accord with Goh and Burns (2012) who stated: “Speaking is a highly complex and dynamic skill that involves the use of several simultaneous processes– cognitive, physical and socio-cultural – and a speaker’s knowledge and skills have to be activated rapidly in real-time.”(p. 166). Since speaking skill is a difficult and complex process, it leads to the expansion of different concepts aims at creating a comprehensible view on this concept.

2.1.3. The Importance of Speaking Fluency

In teaching and learning a foreign language, the speaking skill is as important as any other skill. Brumfit and Johnson (1979) have identified two aspects of language, which are the

accuracy and fluency. According to them, teachers are required to focus on accuracy. On the one hand, accuracy has as its chief concern the language structure, vocabulary, and the assistance of learners to express the meaning and construct the sentences in acceptable sounds. On the other hand, fluency is another aspect in which teachers must focus only on the meaning of the message; however, in class, the teacher must involve all learners to participate in fluency activities. Yang (2014) stated that “speaking fluency can be practiced in the communicative activities, which require all students participating in it” (p.57). Furthermore, Nation (1997) pointed out the importance of fluency, mentioning that it is one of the most crucial components of EFL learning; however, he believed that while teaching speaking skills, teachers must involve the quarter of class time focusing only on fluency.

In addition, speaking fluency is one of the most important criteria of international language exams, including IELTS and TOEFL that assess fluency in a speaking session. EFL teachers need to teach their students the knowledge, as well as to help them with regard to utilising the known content more fluently. However, a slow speed talking or hesitant style passing the message is an obstacle in communication. Speaking fluently is challenging from memorizing to using the language to solving problems. This is the objective to maintain the communication effectively (Yang, 2014).

2.1.4. Fluency as a Level of Proficiency

In the context of teaching English as a foreign language, speaking fluency is often evaluated as a proficiency level by English language teachers. This level of proficiency is characterized by several key factors, as noted by scholars such as Hedge (2000) and Hadži et al. (2012):

- The ability to produce language easily, without encountering significant difficulties or impediments.
- The ability to speak with a good command of intonation, vocabulary, syntax, and grammar, even if the speaker is not necessarily perfect in these areas.
- The ability to express ideas and opinions coherently, in a way that makes sense to listeners.
- The ability to produce continuous speech without causing comprehension difficulties, with minimal breakdowns or disruptions that might interfere with effective communication.

These criteria for speaking fluency are often used by English language teachers to assess their students' progress and proficiency in speaking English.(Richards, 2008)

a. Fluency Three Notions

In 2013, Jong et al cited that Segalowitz (2010) presented three notions of fluency:

Cognitive Fluency: here fluency related to the speaker of a language. How he achieves the goal of his speech, and how he conveys a message successfully.

Utterance Fluency: is when a specialist brings a sample of speech in order to measure the aspects of this sample. Skehan (2003) and Tavakoli and Skehan (2005) observed that utterance fluency has three different aspects:

Breakdown of Fluency: is when the speaker has problems on the ongoing flow of his or her speech. Researcher measured by fluency breakdowns through the counting of pauses (filled or unfilled), and length (Jong, 2013).

Speed Fluency: “Speed fluency has to do with the speed with which speech is delivered and can be measured by calculating speech rate such as number of syllables per second.”(ibid)

Repair Fluency: concerned with times that the speaker make false starts, corrections, and use repetitions

Perceived Fluency:related to the listeners’ impression, either on what is by the speaker or on a speech sample.

b. Types of Fluency

- **Faerch, Haastrup, and Phillipson (1984, Hedge, 1993):** listed three types of fluency:
- **Semantic Fluency:** They defined it as the ability to link two or more prepositions an speech acts. It is also termed coherence. (Hedge, 1993)
- **Lexical-Syntactic Fluency:** They claimed that lexical-syntactic fluency is the ability to link together syntax rules and words (ibid)
- **Articulatory Fluency:** They identified this type as the ability to link the parts of speech together (ibid)
- **Thornbury and Slade (2006):** They added two other kinds of fluency: temporal variables and hesitation phenomena.
- **Temporal Variables:** such as speech rate, pause length and length of run (i.e. the mean number of syllables between pauses)
- **Hesitation Phenomena:** Ellis (1994) claimed that hesitation is one of the difficulties that described the speakers’ inability of making a natural flow of speech. It is characterized by phenomenon such as filled pauses (e.g. erm, uh...), repetitions to organize and reorder ideas, self-corrections (as cited in, Thornbury & Slade, 2006).

c. Fluency Measurements

Wood (2007) asserted that Goldman-Eisler (1967, 1972), is the first researcher who looked for the temporal variables of speech fluency and with the evolution of speech recording and analysis technology. He added that researcher agreed, "...rate or speed of speech, pause phenomena, and length of runs between pauses are essential variables in measuring speaking fluency."(p. 211).

- **Speech Rate:** calculated by dividing the total number of syllables produced in a given speech sample by the total time expressed in seconds (Ortega, 1999, as cited in Iwashita et al, 2008, p. 34).
- **Pause Phenomena:** Wood (2001) claimed that pauses are complex aspects of fluency when it is under the empirical studies.
- **Length of Runs between Pauses:** "tells us how long, on average, a speaker can speak without pausing"(Negishi, 2012, p. 3). They also influence the speaker's speech by adding a color and feelings to what he is saying.

After reviewing the literature on speaking fluency, several key findings have emerged. First, speaking fluency is a complex construct that involves not only the ability to produce language quickly and accurately, but also the ability to use appropriate language in context, employ effective communication strategies, and manage communication breakdowns. Second, there are several factors that contribute to speaking fluency, including language proficiency, anxiety, motivation, task complexity, and feedback. Third, there are a variety of methods and techniques that can be used to improve speaking fluency, such as extensive speaking practice, focused feedback, and task-based language teaching.

The literature suggests that speaking fluency is an important aspect of language learning and that it can be developed through targeted instruction and practice. However, more research is needed to fully understand the complex nature of speaking fluency and to determine the most effective approaches for developing it in language learners.

3. Part two: Online Video Games and speaking fluency

Online Video Games have become increasingly popular among young people around the world. While video games have been criticized for their negative impact on academic performance and physical health, recent studies have suggested that playing Online Video Games can have a positive impact on speaking fluency. This chapter will examine the impact of Online Video Games on speaking fluency, with a focus on the cognitive and social factors that contribute to this impact.

3.1. Literature Review and Definitions:

3.1.1. Online Video Games

Online Video Games have become increasingly popular in recent years, and they have become an important part of the entertainment industry. They allow people to engage in various virtual environments with other players from all over the world. Online Video Games are played on various platforms, including personal computers, gaming consoles, and mobile devices. In this literature review, we will discuss the different types of Online Video Games and the terms associated with them.

a. Types of Online Video Games:

Massively Multiplayer Online Games (MMOGs): MMOGs are Online Video Games that allow thousands of players to participate in a single game world simultaneously. MMOGs are typically set in a fantasy or science fiction universe and involve a significant amount of role-playing. Examples of MMOGs include World of Warcraft, EverQuest, and Guild Wars.

First-Person Shooter (FPS) Games: FPS games are a type of online video game that allows players to shoot their way through various levels. FPS games typically involve a first-person perspective, which means that the player sees the game world through the eyes of the character they are controlling. Examples of FPS games include Counter-Strike, Call of Duty, and Halo.

Real-Time Strategy (RTS) Games: RTS games are a type of online video game that involves strategic decision-making and resource management. In RTS games, players control armies and compete against other players or the computer. Examples of RTS games include Starcraft, Age of Empires, and Command and Conquer.

Multiplayer Online Battle Arena (MOBA) Games: MOBA games are a type of online video game that combines elements of real-time strategy and role-playing games. In MOBA games, players control a single character, and they work together with other players to defeat the enemy team. Examples of MOBA games include League of Legends, Dota 2, and Heroes of the Storm.

b. Terms Associated with Online Video Games:

Avatar: An avatar is a graphical representation of a player in an online video game. The player controls the avatar and interacts with the game world through it.

Lag: Lag is a delay in the transmission of data between the player's computer and the game server. Lag can result in a slow response time and can negatively impact the player's experience.

PvP: PvP stands for player versus player, and it refers to gameplay that involves two or more players competing against each other.

Respawn: Respawn is a term that refers to the reappearance of a player's avatar after it has been killed in the game.

Quest: A quest is a task or mission that a player is given to complete in the game. Quests often involve defeating enemies, collecting items, or solving puzzles.

c. Online Video Games Communication:

In-game communication can take many forms, including text chat, voice chat, and non-verbal communication such as gestures and emotes. Text chat is the most common form of in-game communication, and is often used for socializing, coordinating gameplay, and strategizing (Taylor & Jenson, 2011). Voice chat is less common, but can be particularly useful for coordination in team-based games (Gilliland et al., 2013). Non-verbal communication, such as gestures and emotes, can also play an important role in social interactions within games (Cheung et al., 2011).

Furthermore, In-game communication refers to the ways in which players interact with each other within Online Video Games. These communications can take many forms, including text chat, voice chat, and gestures. In this literature review, we will explore the research on in-game communication, including its types, effects on players and the factors that influence communication behaviors.

d. Types of Online Games Communication:

Text Chat: This is the most common form of communication in online games. Players can chat with each other in real-time through text messages. Text chat is useful for quick communication, but it can also lead to misinterpretation of messages and misunderstandings.

Voice Chat: Voice chat allows players to communicate with each other through a microphone and headset. It is more personal than text chat and can improve teamwork and coordination in games.

Emotes: Emotes are pre-defined gestures or animations that players can use to express emotions or reactions. They are often used in situations where text or voice chat is not appropriate, such as during intense gameplay or in quiet environments.

Ping System: The ping system allows players to communicate with each other using predefined markers on the game map. This system is useful for indicating the location of enemies, items, or objectives.

e. Effects of In-Game Communication:

Research has shown that in-game communication can have both positive and negative effects on players. On the positive side, in-game communication can enhance players' sense of social connectedness and feelings of immersion in the game world (Kim & Park, 2006). In addition, in-game communication can facilitate teamwork and coordination among players (Taylor & Jenson, 2011).

On the negative side, in-game communication can also lead to online harassment and toxicity (Fox & Tang, 2014). This can include cyberbullying, hate speech, and other forms of

negative behavior. In extreme cases, this type of behavior can lead to players leaving the game entirely (Ducheneaut et al., 2006).

f. Factors Influencing In-Game Communication:

Several factors influence the use of in-game communication, including game design, player demographics, and cultural factors. For example, games that require teamwork and coordination may encourage more in-game communication (Gilliland et al., 2013). Similarly, players who identify as female are more likely to use in-game communication to build social connections (Yee et al., 2007).

Cultural factors can also influence in-game communication. For example, research has shown that players from collectivistic cultures are more likely to use in-game communication to build social connections and coordinate gameplay (Kwak & Lee, 2017)

3.1.2. In-Game Voice Chat and Speaking Fluency :

Voice chat has become an increasingly popular method for communication, especially during the pandemic. Speaking fluency, the ability to speak a language smoothly and accurately, is an important aspect of language learning and communication. In this literature review, we will explore the relationship between voice chat and speaking fluency.

One study by Kim (2015) investigated the effects of voice chat on the speaking fluency of Korean EFL (English as a Foreign Language) learners. The study found that students who used voice chat showed significant improvement in speaking fluency compared to those who did not use voice chat. The study also found that the use of voice chat helped students feel more comfortable and confident when speaking in English.

Another study by Chen and Chen (2017) examined the effects of voice chat on the speaking fluency of Taiwanese EFL learners. The study found that students who used voice chat had significantly higher speaking fluency scores compared to those who did not use voice chat. The study also found that voice chat helped students improve their pronunciation and intonation.

A study by Belz and Reinhardt (2004) explored the use of voice chat in a tele-collaborative language learning environment. The study found that voice chat provided a valuable opportunity for learners to practice speaking and to receive feedback on their speaking skills. The study also found that voice chat helped to promote interaction between learners and to create a sense of community among learners.

In a more recent study by Jang and Park (2019), the researchers investigated the effects of voice chat on the speaking fluency and speaking anxiety of Korean EFL learners. The study found that voice chat had a positive effect on speaking fluency and a negative effect on speaking anxiety. The study also found that voice chat provided a supportive environment for learners to practice their speaking skill

The literature suggests that voice chat can be an effective tool for improving speaking fluency in language learners. Voice chat provides learners with a platform to practice speaking, receive feedback on their speaking skills, and develop confidence and comfort when speaking in a foreign language. Furthermore, voice chat has the potential to create a sense of community among learners and to promote interaction between learners.

3.1.3. Using online video game in improving speaking fluency:

Online games communication is an essential aspect of the gaming experience. Different types of communication methods provide a range of benefits, such as improved teamwork and

socialization, while also presenting challenges, such as toxicity and language barriers. Game developers should strive to create safe and inclusive online gaming environments that promote positive communication and collaboration among players.

Online Video Games can be a powerful tool for promoting English as a Foreign Language (EFL) students' speaking fluency. Games provide an immersive and engaging environment that can motivate students to communicate in English while enjoying the game. This is particularly important for EFL students, who may not have many opportunities to use English outside of the classroom.

Online Video Games can provide a range of language practice opportunities. In many games, players need to work together to achieve a common goal, which requires communication and collaboration in English. Players may also need to negotiate and problem-solve in English, which can help build their language skills.

Moreover, Online Video Games often have built-in chat features that allow players to communicate in real-time while playing. This provides an opportunity for EFL students to practice their speaking skills in a low-pressure environment, as they can take their time to formulate their thoughts and responses before speaking.

In addition, Online Video Games can provide a variety of contexts for language learning. For example, games set in historical or cultural contexts can expose students to new vocabulary and concepts related to those contexts. Games with complex narratives can provide opportunities for students to practice their storytelling skills, while games with decision-making elements can help students practice expressing their opinions and making arguments in English.

In a study conducted by Yang et al. (2014), the impact of Online Video Games on English speaking fluency was examined among Taiwanese high school students. The study found that playing Online Video Games, particularly those that involved communication with other players, was positively correlated with English speaking fluency. The authors suggested that Online Video Games could provide a fun and engaging platform for language practice, particularly for students who may be reluctant to participate in more traditional language learning activities.

In another study, Jusoh et al. (2016) investigated the impact of playing a massively multiplayer online role-playing game (MMORPG) on the speaking fluency of Malaysian university students. The study found that playing the game led to significant improvements in speaking fluency, as measured by a standardized language proficiency test. The authors suggested that the social interaction and language practice opportunities provided by the game were key factors contributing to this improvement.

Moreover, a study by Chen et al. (2018) explored the impact of playing a multiplayer online battle arena (MOBA) game on the English speaking fluency of Chinese university students. The study found that playing the game led to significant improvements in speaking fluency, as well as improvements in confidence and motivation to speak English. The authors suggested that the game provided a low-stress environment for language practice, and that the social interaction and competition provided by the game motivated students to improve their English speaking skills.

In a meta-analysis of studies on the impact of video games on language learning, Ke (2019) found that playing video games, particularly those that involved communication with other players, had a positive impact on speaking fluency. The analysis also found that video

games could improve other language skills, such as vocabulary and grammar, and that games that provided opportunities for language practice in a variety of contexts were particularly effective.

Overall, these studies suggest that playing Online Video Games can have a positive impact on speaking fluency, particularly when games involve communication with other players and provide opportunities for social interaction and language practice. However, further research is needed to fully understand the nature of this impact, and to identify the most effective ways to use video games for language learning purposes.

a. Cognitive Factors

Playing Online Video Games can improve cognitive skills that are essential for speaking fluency. One study found that playing action games can improve visual attention and cognitive control, which are important for processing language (Green & Bavelier, 2012). Another study found that playing Online Video Games can enhance working memory, which is crucial for processing and recalling language (Basak et al., 2008). These cognitive improvements may help players process and understand language more quickly and accurately, leading to improved speaking fluency.

Cognitive factors play an important role in language learning, and recent research has suggested that playing Online Video Games can improve cognitive skills that are essential for speaking fluency. For instance, Green and Bavelier (2012) found that playing action games can improve visual attention and cognitive control, which are important for processing language. In their study, participants who played action games for 50 hours over the course of nine weeks showed significant improvements in their ability to filter out irrelevant information and focus on relevant information, which are crucial skills for language processing.

Similarly, Basak et al. (2008) found that playing Online Video Games can enhance working memory, which is crucial for processing and recalling language. In their study, participants who played a specially designed video game for 10 hours over the course of five to eight weeks showed significant improvements in their working memory capacity. These cognitive improvements may help players process and understand language more quickly and accurately, leading to improved speaking fluency.

In conclusion, the benefits of playing Online Video Games for cognitive skills such as visual attention, cognitive control, and working memory may lead to improved speaking fluency. These findings suggest that incorporating video games into language learning programs may be a useful strategy for improving language learning outcomes.

b. Social Factors

Playing Online Video Games can also improve speaking fluency by providing opportunities for social interaction and language practice. Online Video Games often involve communication with other players, which can provide opportunities for language practice in a low-stakes, non-threatening environment (Zhu & Chen, 2015). In addition, Online Video Games can bring together players from different linguistic backgrounds, providing opportunities for exposure to different languages and accents (Gee, 2003). Exposure to different languages and accents can improve the ability to understand and produce language in a variety of contexts, leading to improved speaking fluency.

According to Hsu and Wen's (2019) study, social factors also play a significant role in improving speaking fluency through Online Video Games. They found that Online Video Games allow players to interact with others, share experiences, and engage in meaningful conversations, which can improve their social skills and communication abilities. Additionally, the study

suggests that players who interact with others in a gaming context tend to use a wider range of vocabulary, which can enhance their speaking fluency. Thus, Online Video Games can provide a social platform for language learners to practice and improve their speaking fluency in a supportive and interactive environment.

Online Video Games can have a positive impact on improving speaking fluency, particularly through social factors such as communication with other players and exposure to different languages and accents. Online Video Games offer a low-stakes, non-threatening environment for language learners to practice their skills and engage in meaningful conversations. While further research is needed to explore the specific mechanisms through which Online Video Games can enhance speaking fluency, the existing literature suggests that gaming can be a valuable tool for language learning. However, it is important to balance gaming with other language learning activities to ensure a comprehensive and effective language learning experience.

4. Limitations

While there is evidence to suggest that playing Online Video Games can improve speaking fluency, there are also limitations to this effect. First, not all Online Video Games involve communication with other players, and not all players engage in communication during gameplay. Second, the quality of language practice in Online Video Games may be lower than in other contexts, as players may use non-standard language or engage in inappropriate or offensive communication. Third, the impact of Online Video Games on speaking fluency may vary depending on individual factors, such as language proficiency and gaming experience.

Playing Online Video Games has been shown to have potential benefits for language learning, including improving speaking fluency (Lan, 2014; Peterson, 2010). However, it is important to note that there are limitations to this effect. One such limitation is that not all Online Video Games involve communication with other players, and not all players engage in communication during gameplay (Chen & Diao, 2013). Thus, the potential for language practice through communication in Online Video Games may be limited in some cases.

Another limitation to the impact of Online Video Games on speaking fluency is the quality of language practice that occurs during gameplay. Some players may use non-standard language or engage in inappropriate or offensive communication, which could negatively impact language learning (Castronova, 2010; Jiang, 2013). In addition, the language used in Online Video Games may not be representative of the language used in real-life communication situations, which could limit the transferability of language skills acquired through gameplay (Peterson, 2010).

A third limitation to consider is that the impact of Online Video Games on speaking fluency may vary depending on individual factors, such as language proficiency and gaming experience (Chen & Diao, 2013; Jiang, 2013). For example, players with lower language proficiency may not benefit as much from language practice in Online Video Games as those with higher proficiency. Similarly, players who are less experienced with video games may struggle to simultaneously navigate gameplay and engage in communication, limiting the potential for language practice.

Conclusion:

Online Video Games have been found to be an effective tool for promoting English as a foreign language (EFL) student speaking fluency. The use of these games in language learning has been gaining popularity in recent years due to their interactive and engaging nature. The incorporation of video games into language teaching can help create a more dynamic and immersive learning experience for students, which can ultimately lead to increased motivation and improved language proficiency.

The literature review reveals that Online Video Games have several benefits for English as a Foreign Language (EFL) students. They facilitate authentic communication with players worldwide, enhancing speaking skills. The games' complex storylines and dialogue expose students to diverse vocabulary and grammar structures. Moreover, playing video games helps students overcome their fear of making mistakes and boosts their confidence in using English. However, it is crucial for teachers to choose appropriate games aligned with learning objectives and student levels. Teachers should offer guidance and support to ensure correct and effective language usage. Overall, incorporating Online Video Games in EFL learning shows promise in improving speaking fluency and provides an immersive and engaging environment for students to overcome language learning obstacles. With the world going digital, educators should embrace technology to enhance the learning experience.

RESEARCH

METHODOLOGY

CHAPTER TWO: RESEARCH METHODOLOGY

Introduction

The current study investigates the potential effectiveness of using Online Video Games to enhance English as Foreign Language (EFL) students' Speaking Fluency. Since we Live in a growing digital era, Online Video Games became a force to be reckon with when diving in the topic of language learning. Therefore, it is essential to probe the possibility of these games as a tool to promote speaking fluency, through academically approved measurements. The study aims to potentially offer an insightful investigation on the subject matter.

1. Research design

we opted for a quasi-experimental design because it is the most appropriate for the research as it involves a series of monitored gaming sessions with the targeted group. However, there are certain factors that are currently beyond our control and may potentially influence the experiment.

1.1. Research approach

A mixed method research approach is ideal for studying the use of Online Video Games to promote EFL students' speaking fluency due to its ability to combine the strengths of quantitative methods in establishing generalizable findings and qualitative methods in capturing the rich experiences and perceptions of learners. By integrating both approaches, the researcher can generate a comprehensive understanding of the impact of online gaming on speaking

fluency, this approach provides a comprehensive understanding of the phenomenon, allowing for a deeper exploration of the complex factors that influence language acquisition and fluency development in the context of online gaming.

Mixed method research has gained recognition as a valuable approach for addressing complex research questions by integrating qualitative and quantitative data (Creswell, 2014). The combination of these two approaches allows researchers to gain a more comprehensive understanding of phenomena, enhance the validity of findings, and provide a deeper exploration of participants' experiences (Tashakkori & Teddlie, 2010).

Quantitative research provides numerical data that can be analyzed statistically, allowing for generalizations and establishing causal relationships (Creswell & Clark, 2017). For example, Johnson et al. (2018) employed quantitative surveys to investigate the impact of a specific teaching method on students' academic performance, enabling them to identify significant differences in achievement scores between experimental and control groups.

On the other hand, qualitative research offers a deeper understanding of participants' perspectives, motivations, and experiences through methods such as interviews, observations, and document analysis (Creswell, 2014). For instance, Smith (2019) conducted qualitative interviews with participants to explore their perceptions and experiences regarding the effectiveness of a peer mentoring program, revealing rich insights into the benefits and challenges associated with the program.

The integration of qualitative and quantitative methods in mixed method research allows researchers to capitalize on the strengths of both approaches while compensating for their respective limitations (Tashakkori & Teddlie, 2010). By employing a convergent design,

researchers can merge the two types of data to provide a more comprehensive and nuanced understanding of the research problem (Creswell, 2014). For example, Johnson et al. (2018) used a convergent design to combine survey data and qualitative interviews, revealing not only the statistical impact of the teaching method on academic performance but also the nuanced experiences and perceptions of the participants.

1.2. Research sampling

The population of this study included Second Year LMD Students of English at Biskra University. The researcher used two different sampling techniques:

1- The random sampling technique was used to extract the sample that consisted of 80 students (~16% of the population) to answer the questionnaire. However, only 62 copies were answered.

2- The purposive sampling technique was used to extract 9 students to take part in the experiment. The sample has met the targeted criteria for the objective of the current study.

The researcher aimed to gather data required to probe the hypothesis under investigation through this small-scale experiment. The sampling techniques used in this study serve and are appropriate for the intended objectives.

2. Data collection methods/tools

2.1. Tool one: Questionnaire

2.1.1. Aims and Description of the Questionnaire

The following preliminary questionnaire was administered to locate a sample for the study. The questionnaire was designed to gather essential information and insights related to participants' gaming habits, communication practices within video games, and their experiences with English language use while gaming. The questionnaire consisted of four sections: Basic Information, Frequency of Playing Video Games, Types of Video Games and Platforms, In-Game Communication Channels and Methods, and Video Games and English Language Use.

2.1.2. Questionnaire administration

We have handed out the preliminary questionnaire for the Second Year LMD students who study English language. The students' questionnaire administrated to a random sample of eighty students (80) from different groups of the Second Year LMD students at the department of English at Biskra University. However, only sixty two (62) copies have been submitted.

2.1.3. Description of the Questionnaire

a. Section One: Personal Information

The Basic Information section aimed to collect demographic data about the participants, including their name, age, gender, occupation, and other relevant details. This information helps in categorizing and understanding the characteristics of the sample.

b. Section Two: Frequency of playing Video Games, Types and Platforms (Q01-Q04 + Q13)

The section on Frequency of Playing Video Games, Types of Video Games and Platforms focused on exploring participants' gaming habits. It sought to understand the frequency and duration of their gaming sessions, the types of video games they prefer, and the platforms they use for gaming. This section provides insights into participants' engagement with video games and the diversity of gaming experiences.

c. Section Three: In-Game Communication Channels and Methods (Q05-Q07)

The In-Game Communication Channels and Methods section aimed to investigate the participants' communication practices while gaming. It examined the frequency of communication with other players, the channels and methods they used for communication (such as voice chat, text chat, or in-game messaging), and their preferences for interacting with teammates or opponents. Understanding the communication patterns within gaming environments contributes to a comprehensive understanding of players' social interactions.

d. Section Four: Video Games and English Use (Q08-Q12)

Lastly, the section on Video Games and English Language Use explored participants' experiences and perceptions regarding the use of English in video games. It sought to determine whether participants encountered English language content while gaming and how it may have influenced their English language skills, particularly in speaking. This section sheds light on the potential impact of video games as a medium for language learning and communication.

It is important to note that this interpretation is based on the preliminary questionnaire data and serves as a foundation for further analysis. The insights obtained from this questionnaire

will contribute to a deeper understanding of the chosen sample's gaming habits, communication practices, and the potential influence of video games on their English language use.

2.2. Tool two: Pretest and Posttest

2.2.1. Theoretical framework

Quasi-experimental studies are commonly employed in research to assess the effects of interventions or treatments on various outcomes. One frequently used design within quasi-experimental research is the pretest and posttest design. This literature review aims to explore the utility, advantages, and limitations of pretest and posttest designs in quasi-experimental studies.

2.2.2. Definition and Purpose

The pretest and posttest design involves measuring the outcome of interest both before and after the intervention or treatment is administered to a group of participants. Its primary purpose is to evaluate the change in the outcome and to ascertain the effectiveness of the intervention in producing the desired effects (Johnson & Christensen, 2020).

2.2.3. Advantages

a. Control for Confounding Variables: By measuring the outcome before the intervention, pretest scores can help control for individual differences or external factors that may influence the outcome, enhancing internal validity (Shadish, Cook, & Campbell, 2002).

b. Baseline Comparisons: Pretest scores serve as a baseline against which posttest scores can be compared, enabling researchers to identify the specific impact of the intervention (Shadish et al., 2002).

c. **Statistical Analysis:** Pretest scores can be used as covariates or independent variables in statistical analyses to adjust for initial differences, thereby increasing the precision of the estimated intervention effects (Cook & Campbell, 1979).

2.2.4. Limitations

a. **Testing Effects:** The act of administering a pretest itself can influence participants' responses, potentially leading to biased results (Rosenthal & Rosnow, 2008).

b. **Selection Bias:** In quasi-experimental designs, participants are not randomly assigned to treatment and control groups, which may introduce selection bias and compromise the internal validity of the study (Johnson & Christensen, 2020).

c. **Threats to Validity:** Quasi-experimental designs are susceptible to various threats to internal validity, such as history, maturation, and regression to the mean, which may confound the interpretation of the results (Shadish et al., 2002).

Pretest and posttest designs play a crucial role in quasi-experimental studies, allowing researchers to assess the effectiveness of interventions while controlling for potential confounding variables. Despite their advantages, these designs are not without limitations. It is essential to carefully consider the potential biases and threats to validity associated with pretest and posttest designs to ensure robust and valid findings.

2.2.5. Setting: discord platform

These tests were conducted using the **Discord platform**, which served as the setting for the online discussion with the participants. Discord is a popular communication platform initially developed for gamers but has since been adopted for various purposes beyond gaming.

Discord offers voice, video, and text communication features, making it suitable for conducting online discussions and assessments. It allows users to create private or public servers where they can join voice channels to have real-time conversations. The platform also provides text channels for participants to exchange messages and share relevant materials.

One advantage of using Discord for the pretest and Posttest is its ease of access and user-friendly interface. Participants can join the discussion using their web browser or by downloading the Discord application on their computer or mobile device. They can create an account, join the designated server for the study, and access the voice channel where the online discussion takes place.

Discord offers various features that can enhance the online discussion experience. Participants can adjust their microphone and speaker settings to ensure optimal audio quality. Additionally, the platform provides options for participants to mute and unmute themselves, making it easier to manage the conversation flow.

Moreover, Discord allows both of the pretest and the posttest to be recorded, providing researchers with the opportunity to review and analyze the participants' speaking fluency at a later stage. This feature facilitates accurate assessment and evaluation of the criteria mentioned earlier, such as word count, pauses, repetitions, self-corrections, pronunciation, and intonation.

In summary, the choice of Discord as the platform for the pretest and posttest provided a convenient and user-friendly environment for the online discussion. Its voice and text communication features, along with recording capabilities, allowed for an effective evaluation of the participants' speaking fluency based on the predetermined criteria.

2.2.6. Pretest

Campbell and Stanley (1963) provide a comprehensive overview of experimental and quasi-experimental designs for research. They emphasize the importance of including pretests in quasi-experimental studies to assess initial equivalence of groups and control for potential confounding variables. Additionally, Cook and Campbell (1979) further discuss the use of pretests in quasi-experimental designs. They highlighted the role of pretests in establishing the baseline levels of the dependent variable, measuring the initial differences between groups, and identifying potential covariates that may need to be controlled for during analysis.

a. Aims and Description: Online Discussion

The pretest aimed to evaluate the participants' speaking fluency using the fluency measurements of word count, pauses and hesitations, repetitions and self-corrections, and pronunciation and intonation. The pretest was conducted via Discord, and it took the form of an online discussion with the participants. They were asked to talk about **their earliest gaming experience and share their memories**.

During the pretest, the participants' speaking fluency was assessed based on several criteria.

Word Count: The number of words spoken by each participant was taken into account. A higher word count generally indicates better fluency and the ability to express oneself more extensively.

Pauses and Hesitations: The frequency and duration of pauses and hesitations in participants' speech were observed. Fewer and shorter pauses generally indicate smoother and more fluent speech.

Repetitions and Self-corrections: Instances where participants repeated words or phrases or corrected themselves were noted. Fewer repetitions and self-corrections generally indicate better fluency and the ability to articulate thoughts coherently.

Pronunciation and Intonation: The participants' pronunciation of words and their intonation patterns were evaluated. Clear and accurate pronunciation, along with appropriate intonation, suggests good fluency and communication skills.

By assessing these criteria during the pretest, researchers could gather information about the participants' speaking fluency prior to conducting the main experiment. This evaluation helps establish a baseline and provides a basis for comparison to measure any changes or improvements in fluency resulting from the experiment that follows, which consists of programmed and monitored Gaming Sessions.

2.2.7. Posttest

The posttest design involves measuring the outcome of interest after the intervention or treatment has been administered to a group of participants. Its primary purpose is to evaluate the impact of the intervention on the outcome and determine the effectiveness of the treatment (Shadish, Cook, & Campbell, 2002).

a. Aims and Description: Online Discussion

The posttest was conducted after the experiment or intervention to evaluate any changes or improvements in the participants' speaking fluency. Similar to the pretest, the posttest also focused on the fluency measurements of word count, pauses and hesitations, repetitions and self-corrections, and pronunciation and intonation.

The posttest was also conducted using the same Discord platform as the pretest to maintain consistency in the assessment process. Participants were engaged in an online discussion, similar to the pretest, where they were asked to talk about **their Impressions, thoughts and share their experiences through the previous experiment they had undergone.**

During the posttest, the same criteria used in the pretest were employed to assess the participants' speaking fluency:

Word Count: The number of words spoken by each participant was measured to gauge their ability to express themselves extensively.

Pauses and Hesitations: The frequency and duration of pauses and hesitations in participants' speech were observed to assess the smoothness and fluency of their delivery.

Repetitions and Self-corrections: Instances of word or phrase repetitions and self-corrections were noted to determine the participants' ability to articulate their thoughts coherently.

Pronunciation and Intonation: The participants' pronunciation accuracy and intonation patterns were evaluated to gauge their overall fluency and communication skills.

By comparing the results of the posttest with those of the pretest, researchers could analyze any improvements or changes in the participants' speaking fluency as a result of the experiment. This assessment helps measure the effectiveness of the intervention and provides valuable insights into the impact it had on the participants' Speaking Fluency Skills.

2.2.8. Pretest/Posttest measurements criteria:

The main criteria for measuring fluency are word count, pauses, self-correction, and pronunciation. These measurements were established by a number of researchers, including Kenneth Goodman, Isabel Beck, and Margaret McKeown.

The four main fluency measurement criteria were first proposed by Kenneth Goodman in his 1964 article, "Reading: A Psycholinguistic Guessing Game." Goodman argued that fluency is not simply the ability to read words quickly and accurately, but also the ability to read with understanding. He proposed that fluency could be measured by four criteria:

Word count: The number of words read correctly in a given amount of time.

Pauses and hesitations: The number of times the reader stops or hesitates while reading.

Repetitions and self-corrections: The number of times the reader repeats a word or phrase or corrects themselves.

Pronunciation and intonation: The accuracy and expressiveness of the reader's pronunciation and intonation.

Goodman (1969) stated fluency as the ability to read a text with accuracy, speed, and expression. He argued that fluency is essential for comprehension, as it allows readers to focus on the meaning of the text rather than on the mechanics of reading. Goodman's four criteria have been widely adopted by researchers and clinicians who study reading fluency. They are also used in many standardized reading tests.

Beck and McKeown (1991) developed a fluency assessment that measures word count, pauses, self-correction, and pronunciation. They found that these measures are reliable indicators of fluency, and that they can be used to track a student's progress over time. The use of these

criteria for measuring fluency is now widespread. They are used in a variety of settings, including schools, clinics, and research studies.

2.3. Tool three: the experiment

2.3.1. Theoretical framework:

Quasi-experimental research designs, particularly those utilizing pretest/posttest designs, are commonly employed in studies where true experimental designs with random assignment are not feasible or ethical. This literature review provides an overview of the key findings, challenges, and considerations associated with conducting experiments in quasi-experimental research using pretest/posttest designs.

2.3.2. Identifying and Defining the Experiment/Intervention:

In quasi-experimental research employing pretest/posttest designs, the experiment refers to the treatment or manipulation that is administered to the experimental group. The intervention may encompass various strategies, such as educational programs, therapeutic interventions, or policy changes. Researchers aim to determine the impact of the intervention on the dependent variable(s) by comparing pre-intervention and post-intervention measurements (Smith & Johnson, 2018).

2.3.3. Methodological challenges:

One of the key challenges in quasi-experimental research with pretest/posttest designs is the absence of random assignment. Without randomization, the groups may differ systematically on confounding variables, leading to biased estimates of the intervention's effects (Campbell & Stanley, 1963). Researchers must carefully consider potential sources of bias and explore

strategies such as statistical matching or propensity score analysis to minimize confounding (Rubin, 2001).

Threats to Internal Validity:

Quasi-experimental designs face several threats to internal validity, which can impact the validity of causal inferences. Common threats include history (external events), maturation (changes due to time passing), testing effects (pretest sensitization), and selection bias (non-random assignment). Researchers should employ appropriate strategies to address these threats, such as using control groups, statistical controls, or conducting sensitivity analyses (Cook & Campbell, 1979).

Statistical Analysis:

Analyzing the data in quasi-experimental research with pretest/posttest designs requires appropriate statistical techniques. Researchers often utilize analysis of covariance (ANCOVA) to adjust for pre-existing differences between groups at the pretest stage. This helps to enhance the precision of estimates by accounting for initial variations and focusing on the posttest differences attributable to the intervention (Shadish, Cook, & Campbell, 2002).

Generalizability and External Validity

Quasi-experimental designs using pretest/posttest techniques have limitations regarding generalizability. Due to non-random assignment, caution must be exercised when extending findings to broader populations or contexts. Researchers should carefully describe the characteristics of the sample and contextual factors to assess the generalizability of the results (Campbell & Stanley, 1963).

2.3.4. Aims and Description

a. Experiment Aims

The experiment is administered with the aim to monitor and observe closely the sample being put in a setting of real-time online gaming, in order to measure speaking fluency's main criteria, note and collect data about each participant through a series of online gaming.

b. Experiment Description

The experiment spans across 5 weeks and consists of 15 gaming sessions, with 3 sessions conducted each week. The experiment takes place after the participants had their Pretest. They were Second Year LMD Students of the English department from University of Biskra, were chosen and carefully picked through a purposive sampling techniques according to the needed criteria; one of the former was their familiarity with Online Video Games. The 9 Participants were introduced to a Famous First Person Shooter (FPS) Online Video Game called **VALORANT**, which they will be playing for the duration of the experiment.

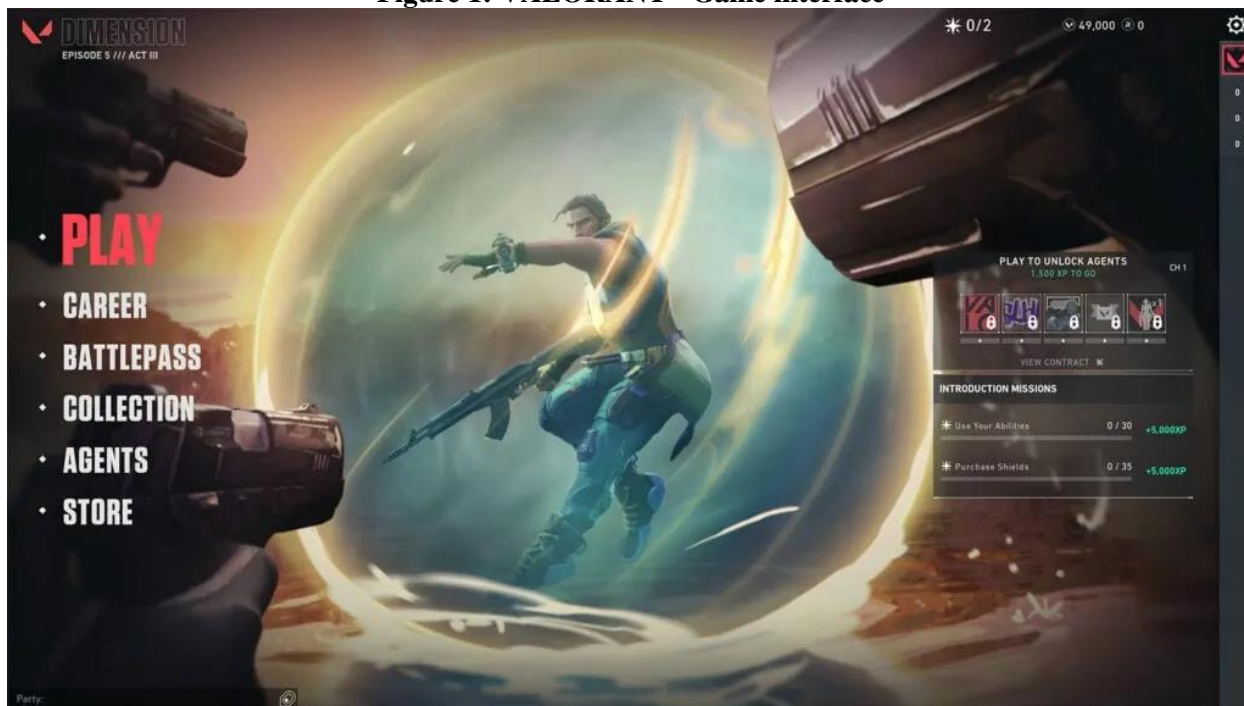
2.3.5. Settings

The experiment takes place in a worldwide famous First Person Shooter (FPS) Online Video Game called VALORANT. Here a brief overview on the game:

a. VALORANT : Game description

VALORANT is a popular online multiplayer first-person shooter (FPS) video game developed and published by Riot Games. Released in June 2020, VALORANT quickly gained attention for its competitive gameplay and tactical elements. The game combines elements from traditional FPS games with unique character abilities, creating a strategic and team-based experience.

Figure 1: VALORANT - Game interface



b. Gameplay

In VALORANT, two teams of five players each compete against each other in objective-based game modes. The gameplay revolves around planting or defusing a spike (bomb) at various sites on the map. The attacking team aims to plant the spike and defend it until it detonates, while the defending team tries to prevent the spike from being planted or defuse it if it has been planted. Each round has a time limit, and the first team to win 13 rounds wins the match.

Figure 2: Gameplay images from the VALORANT



c. Characters (Agents):

VALORANT features a diverse roster of characters known as Agents, each with unique abilities that can be used strategically during gameplay. Agents are categorized into different classes, such as Duelists, Initiators, Sentinels, and Controllers, each serving a specific role and playstyle. Players can select an Agent at the beginning of each round, allowing for a variety of team compositions and strategies.

Figure 3: VALORANT agents Select Tab



d. Weapons and Economy:

Players can purchase weapons and equipment using in-game currency earned through successful rounds or eliminations. VALORANT offers a wide range of firearms, including assault rifles, sniper rifles, shotguns, pistols, and more. Players must manage their economy, balancing the purchase of weapons, armor, and abilities to maximize their team's chances of success.

Figure 4: Example of the buy menu in VALORANT



e. Communication and Strategy:

Communication and teamwork are crucial in VALORANT. Players can communicate through voice chat, text chat, and pings to coordinate strategies, share information, and plan attacks or defenses. The game encourages tactical coordination, map control, and utilizing Agent abilities in synergy to gain an advantage over the opposing team.

f. Ranked and Competitive Play:

VALORANT offers a ranked matchmaking system that allows players to compete in a competitive ladder, progressing through various ranks based on their performance. The game emphasizes fair matchmaking and skill-based gameplay, providing a competitive environment for players to showcase their abilities and climb the ranks.

Figure 5: Ranks in VALORANT



g. Ongoing Updates and Esports:

Riot Games regularly releases updates and patches for VALORANT to balance gameplay, introduce new content, and address community feedback. The game has gained a competitive esports scene, with tournaments and professional leagues organized by Riot Games and other esports organizations.

Overall, VALORANT offers an engaging and strategic FPS experience, combining teamwork, individual skill, and unique Agent abilities. With its emphasis on communication,

tactical gameplay, and competitive ladder, the game has attracted a large player base and continues to evolve through ongoing updates and support from Riot Games.

2.3.6. Rational Behind the Game Choice:

In VALORANT, the main communication channel for players to coordinate and communicate with their teammates is voice chat. The game provides built-in voice chat functionality, allowing players to communicate verbally in real-time during matches. Voice chat enables players to effectively strategize, call out enemy positions, coordinate tactics, and provide crucial information to their team.

Using voice chat in VALORANT can greatly enhance teamwork and coordination, as it allows for quick and direct communication without the need for typing or relying solely on pings. It enables players to share important information and make split-second decisions, leading to more efficient gameplay and better team synergy.

Accordingly, the experiment focuses on the speaking aspect of the players' experience, this makes the game a suitable choice for the researcher to monitor and observe the participants' speaking fluency during the gameplay.

2.3.7. Experiment planning and programming:

The experiment spans throughout 5 weeks, with 3 sessions for every week (a total of 15 Gaming sessions) to offer consistency and to offer enough data to analyse. Each session will have only 3 of the participant in a team of 5 , with the addition of 1 English Second Language non-participant speaker and a Native English Speaker in order to push and motivate the participants to speak only in English during the game. Every session will have around 30–50 minutes long Game.

Conclusion

The research methodology chapter utilized a preliminary questionnaire, pretest, posttest, and an experiment to investigate fluency criteria. The preliminary questionnaire helped identify suitable participants, while the pretest established a baseline for their initial fluency levels. The subsequent experiment introduced interventions aimed at enhancing fluency, and the posttest measured the participants' progress.

The structured methodology ensured a systematic approach to data collection and analysis. By incorporating these tools, the study obtained reliable data on fluency criteria such as word count, pauses and hesitations, repetitions and self-corrections, pronunciation, and intonation.

The methodology's effectiveness lies in its ability to provide a clear framework for the study, allowing for meaningful comparisons between the participants' pre- and posttest performance. Through this methodology, valuable insights were gained regarding the impact of interventions on fluency development.

RESULTS

&

DATA ANALYSIS

CHAPTER THREE: RESULTS AND DATA ANALYSIS

Introduction

The results and data analysis chapter of this study aims to present a comprehensive analysis of the collected data in order to gain valuable insights into the effectiveness of utilizing Online Video Games as a tool to enhance English as a Foreign Language (EFL) students' speaking fluency. In this chapter, we will delve into the statistical methods and techniques used to examine and interpret the data, ultimately providing a deeper understanding of the impact of Online Video Games on students' language skills.

To achieve this, a mixed-methods approach was adopted, combining qualitative and quantitative data collection methods. The quantitative data was collected through pre- and posttests scores, which assessed students' speaking fluency before and after the intervention. Additionally, qualitative data was gathered through an observed and monitored experiment to obtain in-depth insights into students' perceptions and experiences.

Before diving into the analysis, it is important to note that the study employed a sample of EFL students selected from the Second Year LMD Department of English students from the University of Biskra. The 9 selected participants from the preliminary questionnaire were invited to undergo a series of Online Video Games sessions as a part of the intervention/experiment.

1. Results

1.1. Questionnaire

1.1.1. Section one: personal information

a. Age:

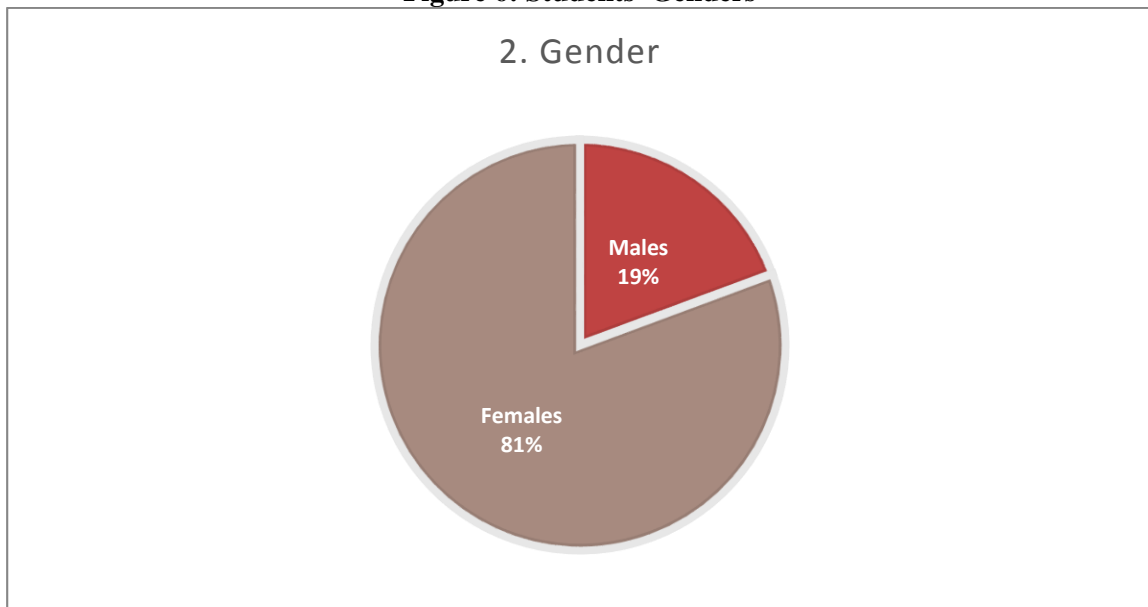
Table 1: Students' Age

Age	18	19	20	21	≥ 22	TOTAL
Number	05	23	22	07	05	62%
Percentage	08%	37%	35.4%	11.2%	08%	100%

As it is observed from Table 1 above, the participants' ages vary from (18) years old and above. The age (19) exceeds the other ages with (37%). Then, comes the age (20) in the second place with (35.4%); however, the age (18) and (above the age of 22) have the same percentage (8%), while the age (21) comes in third with (11.2%). In result, we note that the students are mostly between (19) and (21) with certain exceptions.

b. Gender:

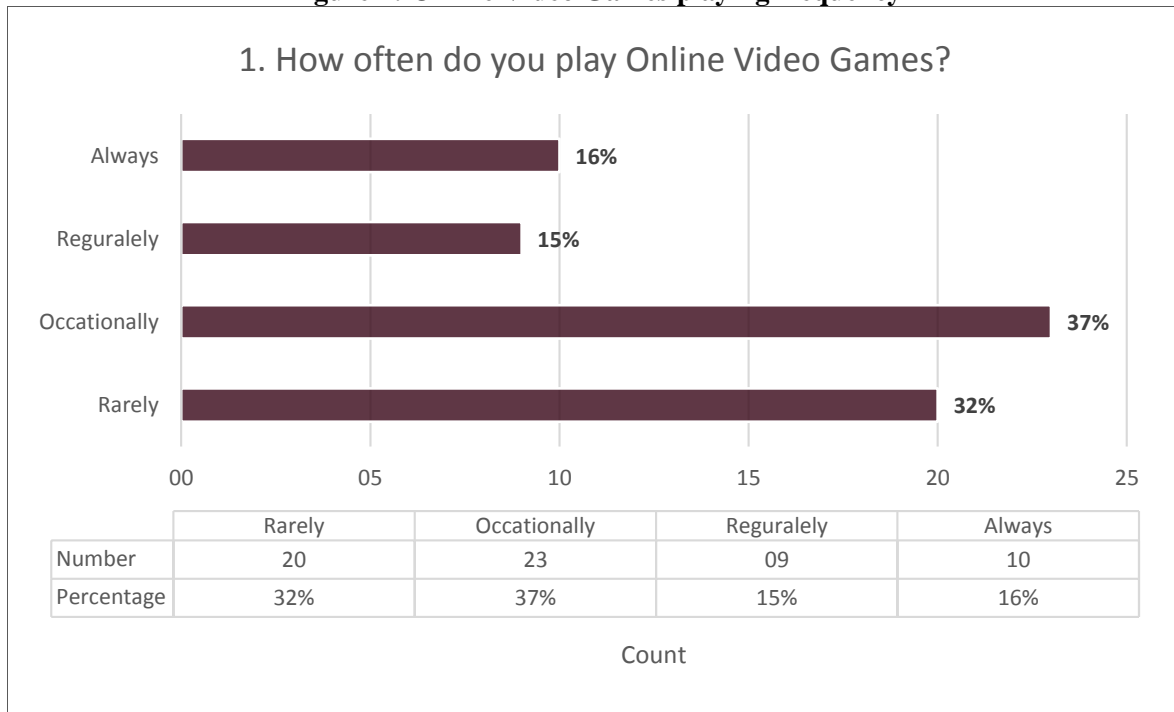
Figure 6: Students' Genders



The result of the above figure indicates that 80.6% (rounded to 81%) represents the females' percentage, whereas the other 19.4% represents the males' percentage. Hence, females are the dominant gender within the participants' group.

1.1.2. Section Two: Frequency of playing Video Games, Types and Platforms (Q01-Q04+ Q13)

Figure 7: Online Video Games playing frequency



For this question, we notice that ~30% stated that they either always or regularly play Online Video Games, while the rest ~70% show less frequency. This will allow us to further narrowing when it comes to selecting the sample needed.

Figure 8: Types of Online Video Games

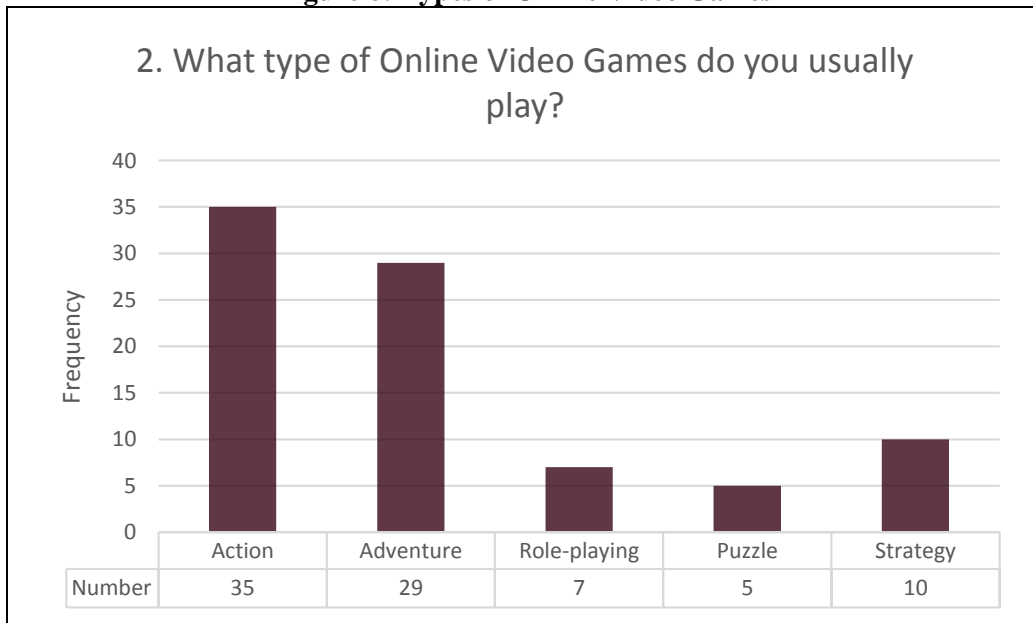
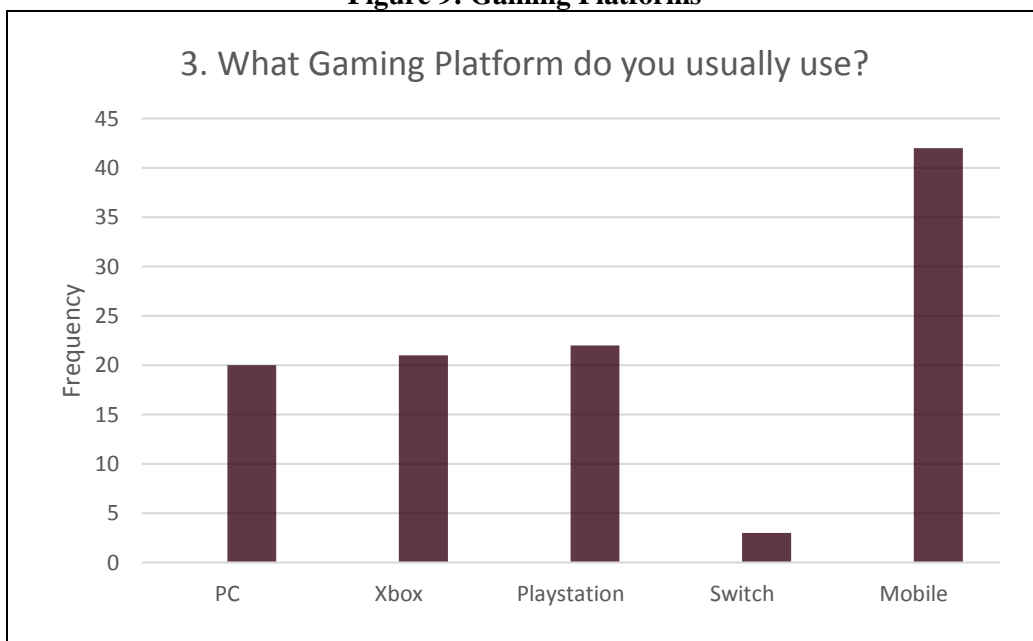


Figure 8 shows that the majority of the population is divided between action and adventure type video games, while the rest chose RPGs, Puzzle and Strategy video games. The participants could choose more than one type, leading to clear supremacy of the two most dominant types of Online Video Games.

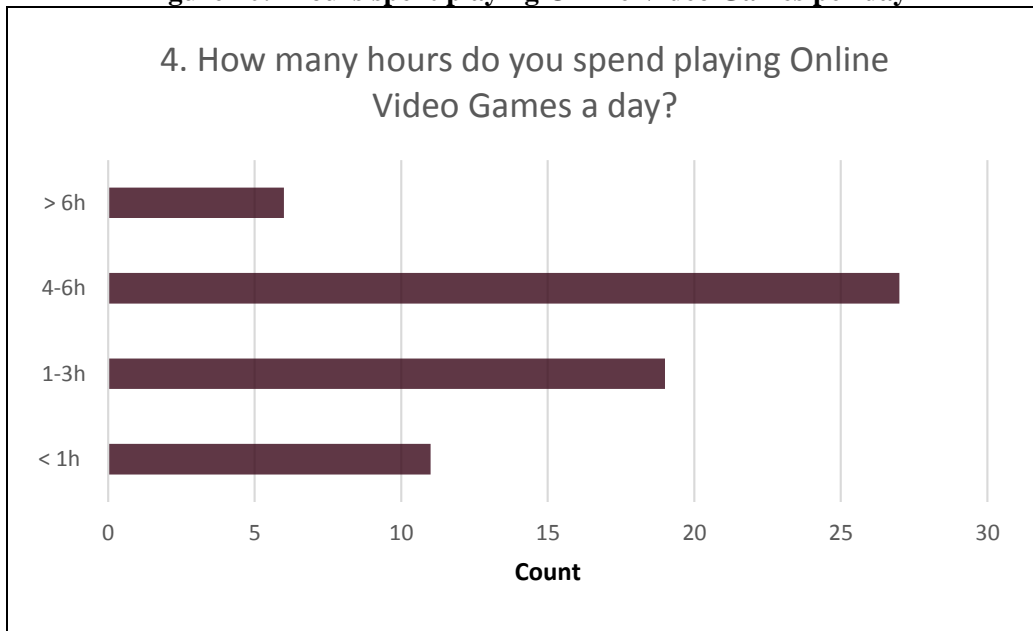
Figure 9: Gaming Platforms



Understandably, people can use more than one or two gaming platform, this means that like Figure 9 demonstrate the numbers in the PLAYSTATION and XBOX platforms are almost equal, followed by PC gaming platform, then we note an exponentially lesser numbers when it comes to the NINTENDO SWITCH platform. However, Mobile gaming clearly takes the lead by far compared to the rest of the categories; this indicates that almost every platform user also plays on his phone.

When asked about their how much time they spend in playing Online Video Games per day , as shows Figure 10, 27 people spend from 1 hour to 6 hours a daily , while 29 said they only play for 3 hours or less per day. We also notice that there are around 6 participants who acknowledged that they spend more than 6 hours a day dived into the gaming world.

Figure 10: Hours spent playing Online Video Games per day



a. Section Two Summary

In this section of the preliminary questionnaire, we aimed to narrow down the sample by asking them about their frequency of playing Video Games, their most used gaming platforms, also since we have an idea about the targeted game that will be used in the experiment, we asked

them about their most played types of video games and their daily gaming periods, leading us to gain information about the familiarity with the targeted online video game.

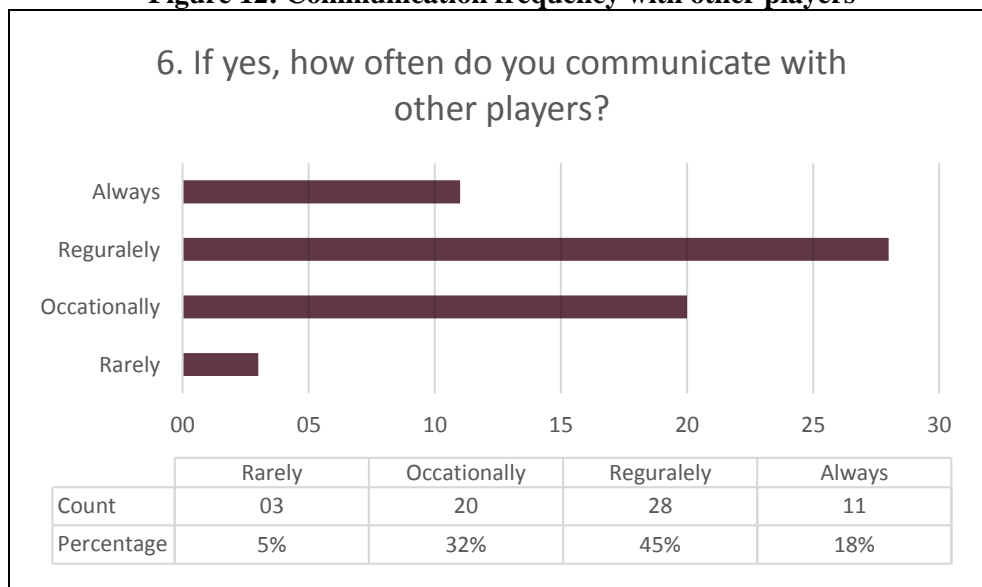
Figure 11: Playing Online Video Games with other people



Figure 11 demonstrates the percentage of population that interacts with other players during their online gaming activities, showing that the majority (76%) answered YES, while the rest (24%) answered with NO.

1.1.3. Section Three: In-Game Communication Channels and Methods (Q05-Q07)

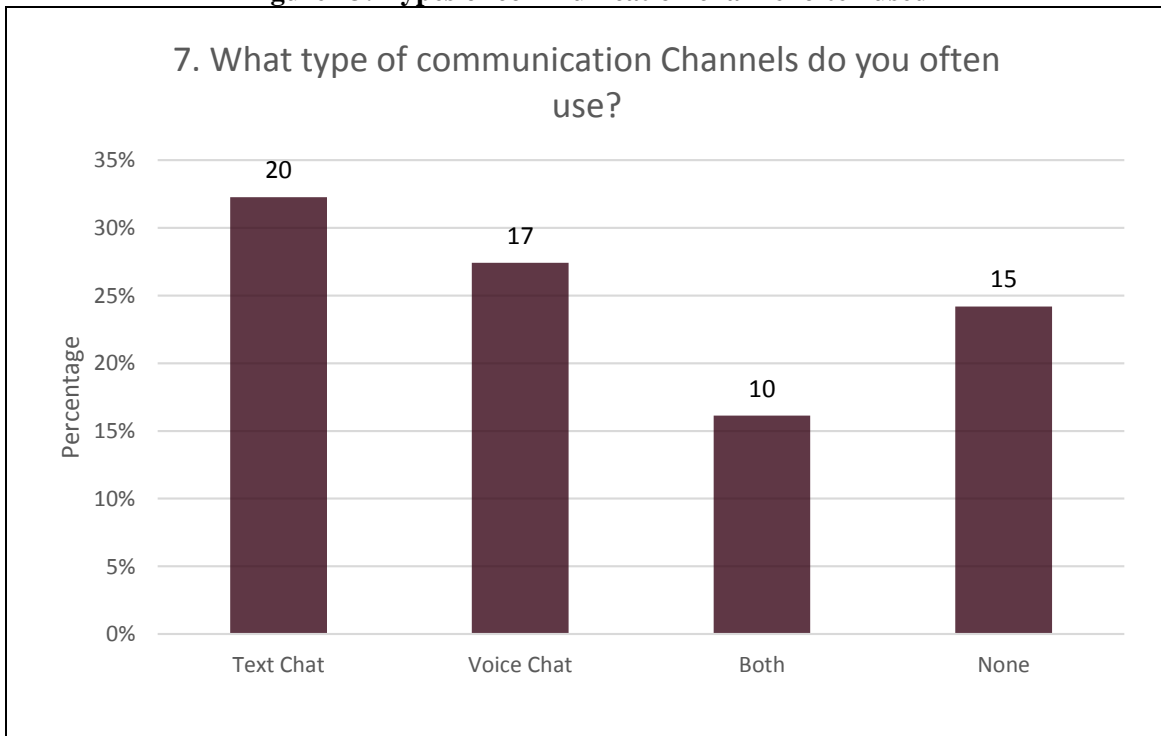
Figure 12: Communication frequency with other players



As observed in Figure 12, students when asked about the frequency of their interaction with other players while playing Online Video Games, the majority answered by “Regularly”, whereas, we notice lesser numbers in “Occasionally” and “Always” categories, indicating that players often engage in interaction with other players in game. However we note that there is a portion of the population that voted “Rarely” meaning that have way less interaction with others while playing.

We notice in Figure 13 that when asked their mostly used communication channels, students showed that they use either Text Chat or Voice chat, while there are some who voted that they do not use communication channels, there are some who voted they use both of these channels, which helped us to further identify a particular aspect of the in-games communications.

Figure 13: Types of communication channel often used



Section Three Summary

When observing the results from this section of the questionnaire, that dived into the use frequency of communication channels and also its types. We identified an important aspect of the students' Online Video Games' communication means. This would help us to establish a clearer idea about the targeted sample.

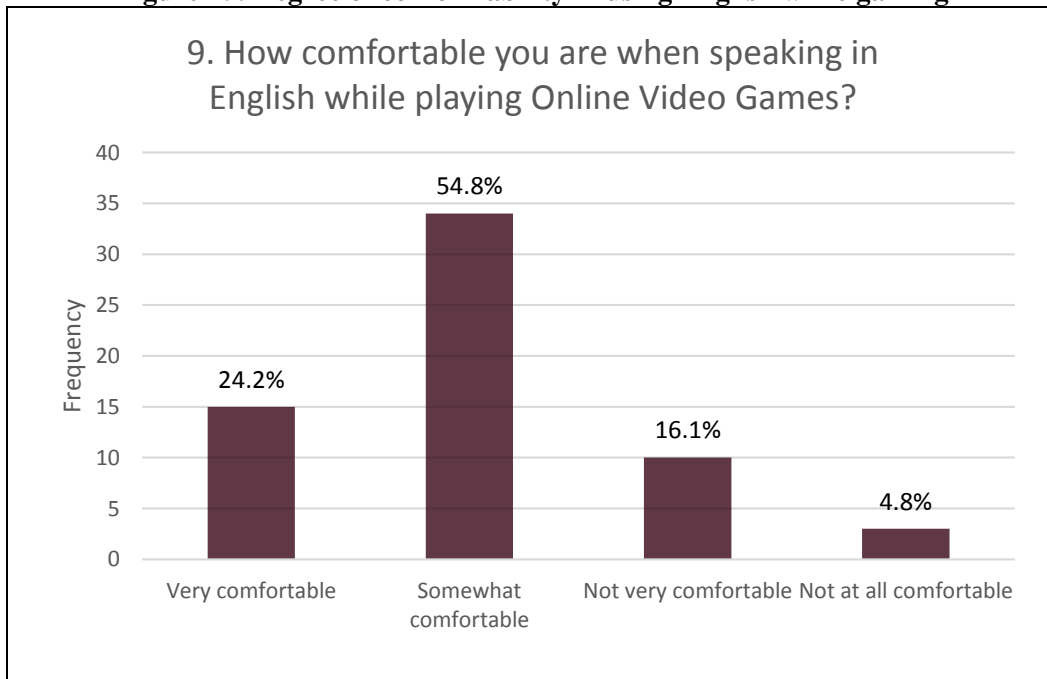
1.1.4. Section Four: Video Games and English Use (Q08-Q12)

Figure 14: English use as a primary language in Online Video Games



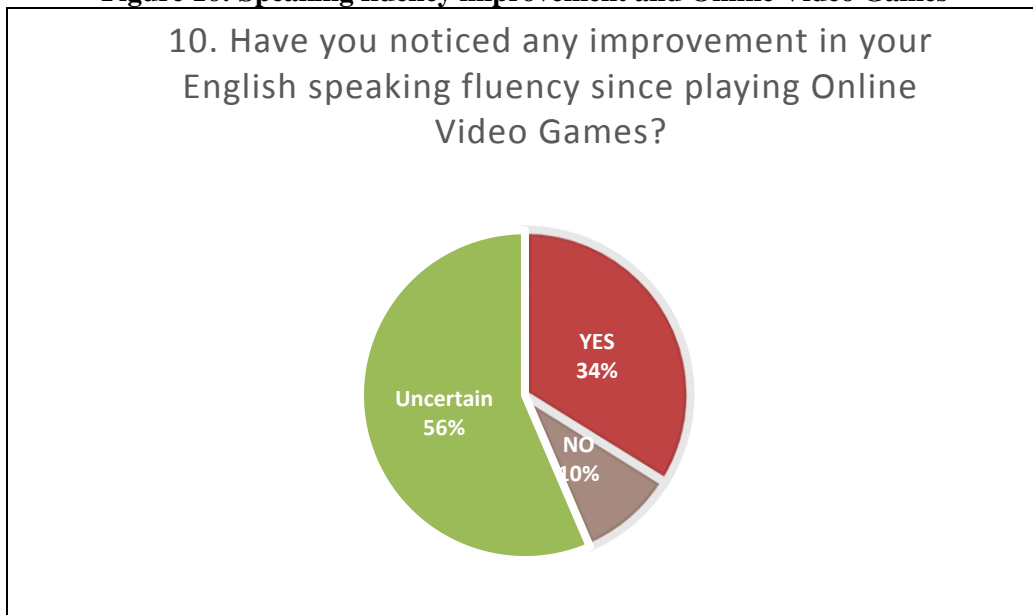
The above Figure shows the percentage of the students who use English as their main language when interacting with other players in Online Video Games. A dominant portion (76%) voted YES, while the rest 24% voted NO, which indicates that the majority of the students use English as their primary language when they are gaming.

Figure 15: Degree of conformability in using English while gaming



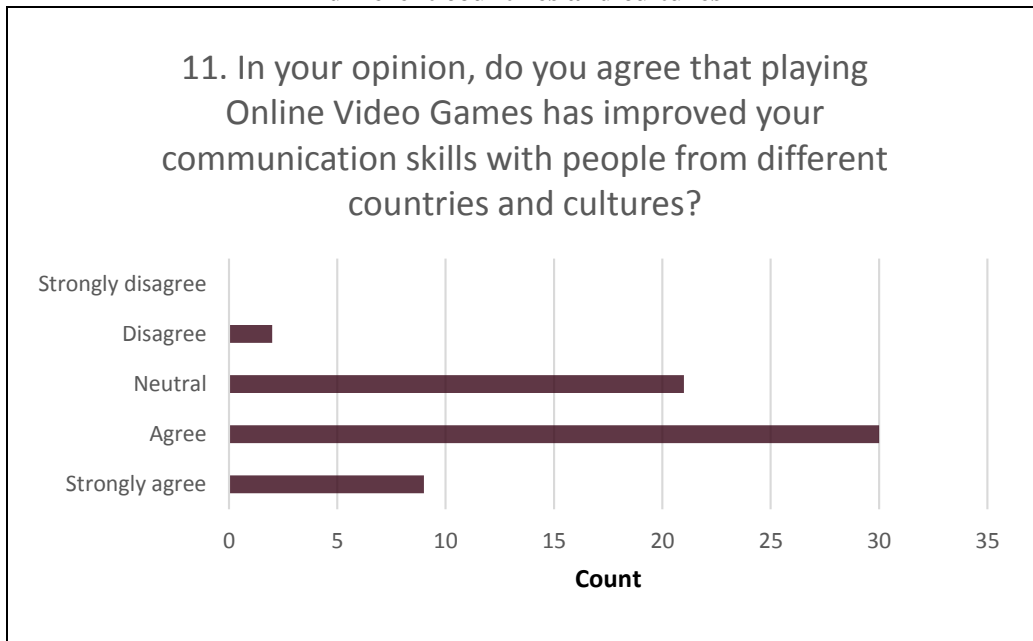
In Figure 15 we can observe how comfortable the students are when using English to communicate in-game. While more than half are “Somewhat Comfortable”, we notice a considerable number (around 24%) voted that they are “Very Comfortable” speaking in English when playing , while ~20% voted that their degree of conformability is low.

Figure 16: Speaking fluency improvement and Online Video Games



We asked students whether they think that playing Online Video Games helped improve their English speaking fluency, the statistics from Figure 16 indicates that 56% of them are not certain if it helped or not, while 34% voted YES , the smaller portion (10%) voted NO.

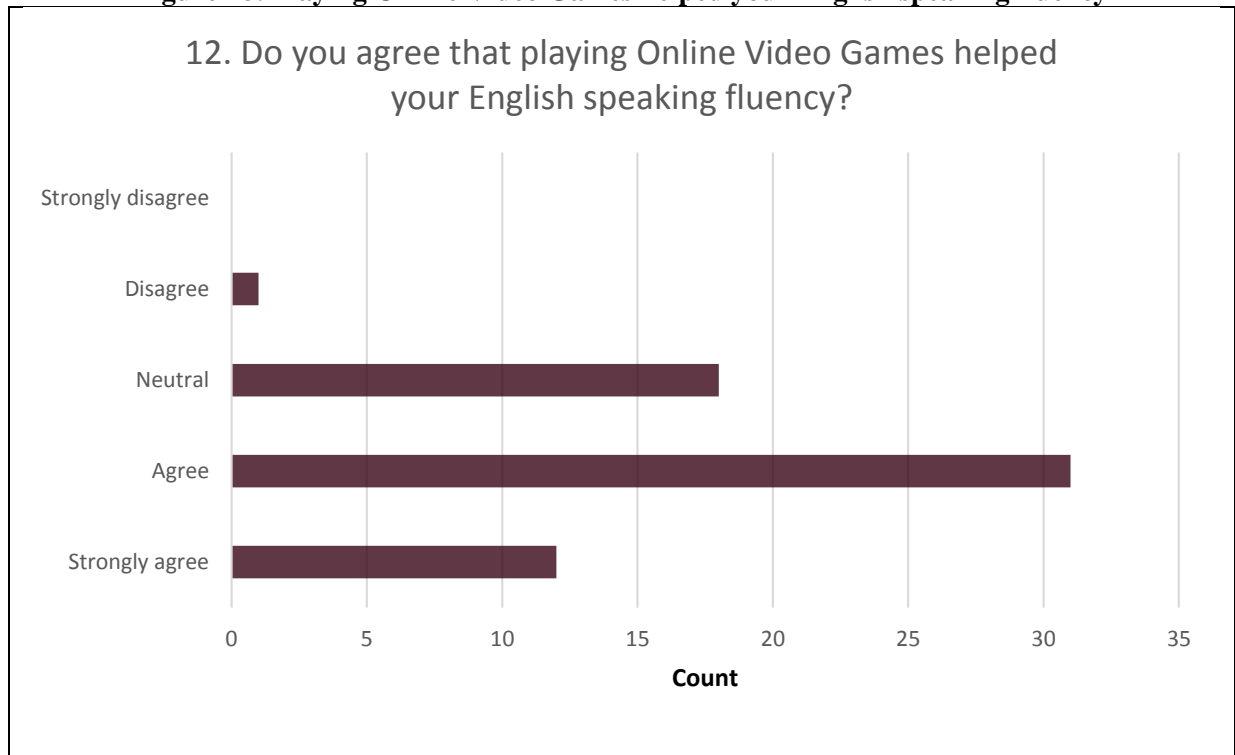
Figure 17: Playing Online Video Games has improved your communication skills with people from different countries and cultures



The above Figure illustrates the statistics when we asked the students about their opinion, whether they think that playing Online Video Games has improved their communication skills with people from different countries and cultures. The results showed a considerable number that maintained a neutral opinion, while the dominant answer was that they agree with the above statement.

In an attempt to gain an inside about the students’ point of view on whether playing Online Video Games have helped their English speaking fluency, as shown in Figure 18 most of them “agreed” and “strongly agree” with the statement, while a number of them stayed neutral due to an uncertainty.

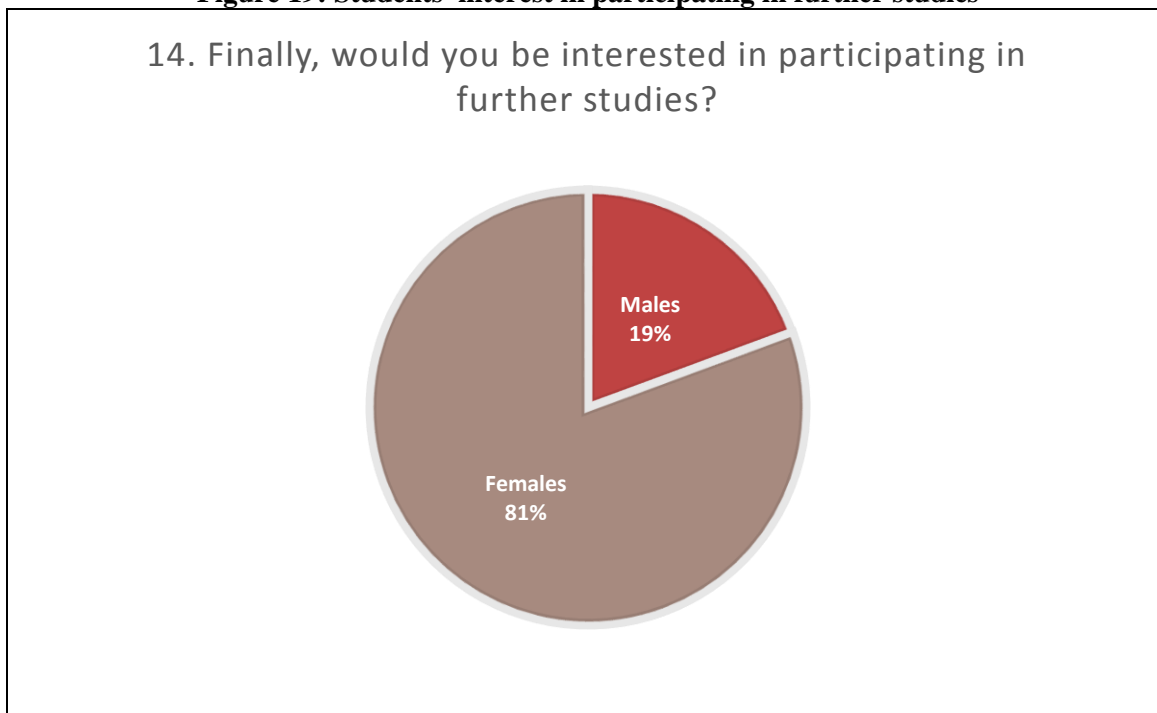
Figure 18: Playing Online Video Games helped your English speaking fluency



Section Four Summary

By asking the above questions of section four, we tried to gain an insight about the students' opinions over the relation of playing Online Video Games and their speaking skills development, shedding a light on an important aspect of this questionnaire's aims.

Figure 19: Students' interest in participating in further studies



Finally, we wanted to explore the students' aptitude to potentially participate in the upcoming research steps, in order to include this questions statistics when selecting the sample which will undergo the pretest/posttest-experiment procedure.

1.2. Pretest/ posttest

1.2.1. Pretest

a. Instructions:

The Participants were given a topic to speak about. They had 2-3 minutes to prepare their thoughts before speaking in turns.

b. Topic:

- Describe what you remember about your earliest gaming experience.

Table 2: Pretest Scores

Participant	Word count	Pauses and hesitations	Repetitions and self-corrections	Pronunciation and intonation	Total Score /20
Participant 01	01	01	02	01	05/20
Participant 02	01	02	03	02	08/20
Participant 03	01	01	01	01	04/20
Participant 04	01	01	02	01	05/20
Participant 05	02	03	04	04	13/20
Participant 06	01	01	02	02	06/20
Participant07	01	01	01	01	04/20
Participant 08	01	01	01	02	05/20
Participant 09	03	03	02	03	11/20

1.2.2. Posttest

Instructions:

The Participants were given a topic to speak about. They had 2-3 minutes to prepare their thoughts before speaking in turns.

Topic:

- Talk about your thoughts and impression about the experiment you have undergone.

Table 3: Posttest Scores

Participant	Word count	Pauses and hesitations	Repetitions and self-corrections	Pronunciation and intonation	Total Score /20
Participant 01	02	01	02	01	06/20
Participant 02	02	03	03	02	10/20
Participant 03	02	02	02	02	08/20
Participant 04	01	01	02	01	05/20
Participant 05	03	03	04	04	14/20
Participant 06	02	02	02	02	08/20
Participant07	02	01	01	01	05/20
Participant 08	02	02	02	02	08/20
Participant 09	03	04	03	03	13/20

1.2.3. Pretest/ posttest rubric

a. Assessment Criteria and measurement method:

Word count: Speak for at least 2 minutes on the topic. Try to use a variety of vocabulary and sentence structures to convey your thoughts.

Pauses and hesitations: Try to minimize pauses and hesitations during your speech. If you do need to pause, try to keep them brief and natural.

Repetitions and self-corrections: Try to avoid repeating yourself or correcting mistakes during your speech. If you do need to correct a mistake, do so quickly and smoothly.

Pronunciation and intonation: Focus on using clear and accurate pronunciation, and using appropriate intonation and stress to convey your meaning.

b. Scores Classification:

- **16-20 - Highly fluent:** The speaker demonstrated a high level of fluency and communication skills in all areas.
- **11-15 - Moderately fluent:** The speaker demonstrated a moderate level of fluency and communication skills in most areas.
- **6-10 - Somewhat fluent:** The speaker demonstrated some level of fluency and communication skills in some areas but needs improvement in others.
- **1-5 - Not fluent:** The speaker demonstrated a low level of fluency and communication skills in most or all areas and needs significant improvement.

There are a number of studies that confirm this scoring system for speaking fluency. One study, conducted by De Jong and colleagues (2005), found that the scoring system was a reliable and valid measure of speaking fluency. The study found that the scores from the scoring system were correlated with other measures of speaking fluency, such as the number of words spoken and the number of pauses.

Another study, conducted by Hu et al. (2011), found that the scoring system was sensitive to changes in speaking fluency over time. The study found that the scores from the scoring system increased as participants received speech therapy.

These studies suggest that the scoring system is a valid and reliable measure of speaking fluency. It can be used to assess a speaker's fluency and to track a speaker's progress over time.

1.3. Experiment

The purpose of this experiment was to assess the speaking fluency of nine (9) participants (participant and player are used interchangeably in this work) in a gaming context. The experiment spanned over a period of five (5) consecutive weeks and consisted of 15 gaming sessions in the popular game VALORANT. The sessions were evenly distributed, with three (3) sessions scheduled per week. Each session comprised three (3) participants and included one (1) second language speaker and one (1) native speaker. The presence of both native and second language speakers aimed to create an environment conducive to language learning and communication.

During each gaming session, participants engaged in three matches, with each match lasting approximately 30-50 minutes. Throughout the matches, the participants' speaking fluency were closely monitored, paying attention to their ability to communicate effectively in the English and their overall teamwork and coordination. The observations encompassed various aspects, such as the participants' fluency.

To ensure accurate data collection, each session was carefully planned and scheduled in advance. The experimenters randomized the participant groups for each session to ensure a fair distribution of native and second language speakers. Furthermore, the experimenters provided appropriate gaming environments and equipment for all participants, ensuring a level playing field.

The observation and monitoring process involved capturing both qualitative and quantitative data. Observers documented the start and end times of each match, taking note of the

participants' speaking fluency throughout the gameplay. Additionally, video and audio recordings were made to enable comprehensive analysis and verification of the observers' notes.

1.3.1. Week one:

a. Sessions observation

Session 01: included P1, P3, P7, a Spanish player and a native speaker (British), the session lasted for 3 games, with an average of 40 minutes each.

Session 02: comprised of P2, P4, P9, a French player and a native speaker (English), average of each game time was 45 minutes.

Session 03: included P5, P6, P8 teaming up with a Norwegian and a English player. Each game was around 35 minutes.

b. Observation summary:

During Week One, the participants were exposed to a real-time gaming experience in VALORANT, where they participated in games teaming up with second language and native speakers, as a team of five (5).

We noticed that almost all the participant had troubles keeping up with the other 2 players, especially when trying to give information about the match status or the enemy team. However, an effort was clearly noticed especially by 2 of the participant.

1.3.2. Week two:

a. Sessions observation

Session 04: the P2, P5, P7 teamed up with French and an Irish player, with an average of 40 minutes each game.

Session 05: comprised of P1, P8, P9, a German player and a native speaker (English), average of each game time was 32 minutes.

Session 06: included P3, P4, P6 teaming up with a German and an English player. Each game was around 43 minutes.

b. Observation summary:

During the Week Two's observation, we noticed a slight change in the teams' dynamics, where most of the participants tried to speak more during the game and the post-games discussions, in which we identified a noticeable increase in word count and self-correction.

1.3.3. Week three:

a. Sessions observation

Session 07: P4, P8, P6 played with a German and an English player, the games were around 50 minutes each.

Session 08: the team comprised of P7, P5, P9, a German player and a native speaker (English), average of each game time was 30 minutes.

Session 09: included the three participants (P1, P4, and P2) teaming up with 2 German players. Each game was around 40 minutes.

b. Observation summary:

For the Week Three's observation, there was almost no observable change in the sample's performance; we note that there was a slight openness when it comes to the participants' behavior towards the gaming sessions. However, there was no scaling when measuring their fluency parameters.

1.3.4. Week four:

a. Sessions observation

Session 10: P1, P7, P9 played with a German and an English player, the games were around 40 minutes each.

Session 11: included P3, P4, P6, in a team that had one German player and one Scottish player. The games were around 37 minutes.

Session 12: the participants P5, P2, and P8 were put in a team with 2 British players. The average match time was around 33 minutes.

b. Observation summary:

The third week was a remarkable one, we noticed that 50% of the participants expressed some improvements in word count, Repetitions and self-corrections and pauses and hesitations areas, especially the participants (P3, P5, P6 and P9).

1.3.5. Week five:

a. Sessions observation

Session 13: included P1, P2, P3 teaming up with an Italian and an English player, with an average of 50 minutes for each match.

Session 14: the games comprised of P4, P5, P6, a German and an English player. The games were around 40 minutes.

Session 15: the participants P7, P8, and P9 were put in a team with a German and an Irish player. The average match time was around 37 minutes.

b. Observation summary:

Being the last week of this experiment, almost all (80%) of the participants exhibited a noticeable scaling in the targeted areas: word count, pauses and hesitations, repetitions and self-corrections and pronunciation and intonation. Accordingly, their words and vocabulary rates significantly increased (some more than others), their ability to self correct, showed less hesitation and decreasing amount of pauses. This ultimately enhanced the dynamic and the flow of communication among themselves and the outsiders (the two other teammates added in every gaming sessions).

2. Data analysis

This research was quasi-experimental research. This study was conducted at the University of Biskra on Second Year LMD students of English Department. We used pretest and posttest design. The sample has almost the same level of knowledge and familiarity about the target game (VALORANT).

The procedure in this research started from administrating a preliminary questionnaire to locate a suitable sample, and then 9 participants were selected. They were given a pretest to measure their speaking fluency before the treatment and ending with a posttest.

Data analysis in this research consisted of descriptive analysis and inferential analysis. Descriptive analysis of mean value, standard deviation, and variance of the pretest and posttest scores. Furthermore, in Table 4 the score was converted from quantitative into qualitative data categorised into the following: not fluent, somewhat fluent, moderately fluent and highly fluent.

Table 4: Qualitative Criteria of participant's scores and frequency distribution of pre and post tests

Interval	Category	Experimental class			
		Pretest		Posttest	
$1 \leq X \leq 5$	Not Fluent	5	55.5%	2	22.2%
$6 \leq X \leq 10$	Somewhat Fluent	2	22.2%	5	55.5%
$11 \leq X \leq 15$	Moderately Fluent	2	22.2%	2	22.2%
$16 \leq X \leq 20$	Highly Fluent	0	0%	0	0%

2.1. Descriptive statistics

The results of this research are divided into two parts, namely the description of research results and hypothesis testing. Description of the sample scores in the pretest and posttest can be seen in Table 5.

Table 5: Data Description of the Sample Scores

	Pretest scores (/20)	Posttest scores (/20)
PLAYER 01	05	06
PLAYER 02	08	10
PLAYER 03	04	08
PLAYER 04	05	05
PLAYER 05	13	14
PLAYER 06	06	08
PLAYER 07	04	05
PLAYER 08	05	08
PLAYER 09	11	13
Sum (Σ)	61.00	77.00
Mean (\bar{X})	06.78	08.56
Median (M)	05.00	08.00
Mode	05.00	08.00
Range	09.00	09.00
Variance (Sample)	10.44	10.53
Standard deviation(Sample)	03.23	03.24

Table 5 shows that there is increase of the average score by 1.78. We can also note that both the pretest and posttest standard deviations are almost identical. Additionally, there is no participant who reached High fluency in both tests, but we can clearly notice that the Somewhat

fluent category in the posttest showed a considerable increase in numbers. However, these improvements noted in the posttest scores do not allow us to clearly state that the overall speaking fluency scores were the results of the experiment.

Before doing the inferential analysis, normality and homogeneity assumptions are tested to determine the appropriate statistics test. The well-known test of normality, the Kolmogorov–Smirnov test, is used to test the normality of the data; while, the Bartlett's test (Snedecor and Cochran, 1983) is used to test the homogeneity of variances across samples. The assumption test results are summarized in Table 6 while the Matlab calculation outputs are presented in figures 20-22.

Table 6: Normality and homogeneity tests result

	Pretest	Posttest
Normality test	0.000	0.000
Homogeneity test	0.9913	

Based on Table 6, the signification value before and after the experiment is less than 0.05, then the data are not normally distributed; whereas, for the homogeneity assumption, the value of significance (0.9913) is clearly greater than 0.05, therefore, the group is homogeneous.

Figure 20: Pretest Kolmogorov-Smirnov Normality Test

```
pretest =
    5    8    4    5   13    6    4    5   11

>> [~,p]=kstest(pretest)

p =
    2.7595e-09
```

Figure 21: posttest Kolmogorov-Smirnov Normality Test

```
posttest =
    6   10    8    5   14    8    5    8   13

>> [~,p]=kstest(posttest)

p =
    2.7560e-09
```

Figure 22: Bartlett's Homogeneity Test

Group	Count	Mean	Std Dev
1	9	6.77778	3.23179
2	9	8.55556	3.24465
Pooled	18	7.66667	3.23823
Bartlett's statistic	0.00012		
Degrees of freedom	1		
p-value	0.9913		

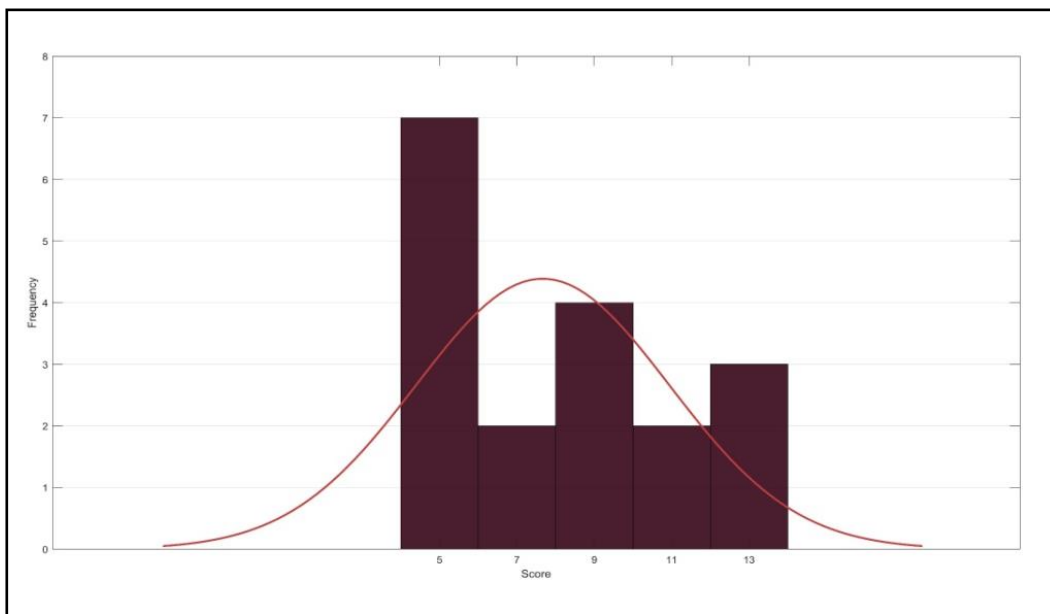
2.2. External Validity: Inferential statistics

Based on the results obtained in the previous section (sample not normally distributed), the descriptive statistics does not allow the testing of the hypothesis. Alternatively, we should run inferential statistics to conduct a hypothesis test. To do so, we define the sample size and the type of the distribution from the dataset.

The size of our sample data is small ($n_1+n_2 = 18 < 30$). The Kolmogorov–Smirnov normality test showed that our data do not follow a normal distribution. This can be confirmed

also in Figure 23 which shows the histogram from the frequency of our data distribution. As can be depicted, the sample is not normally distributed, and consequently the suitable statistical test to conduct this research is a non-parametric test. Given that the data can be ordered based on the score of each participant and that it is homogenous, we determine that the Mann-Whitney U Test is the most appropriate test to conduct our hypothesis testing.

Figure 23: Frequency Distribution of pretest and posttest scores



The null hypothesis (H_0) assumes that the two samples (pretest and posttest samples) are equal; whereas, the alternative hypothesis (H_1) states that the posttest sample mean is greater than the pretest sample mean, or in other words, that the posttest sample is more fluent than the pretest sample which gives us a one-tailed test. We created an Excel sheet to calculate the Mann-Whitney U statistic (Table 7) and performed the calculation on MATLAB (Figure 24), too.

The appropriate critical value can be found in Table 8. To determine the appropriate critical value we need sample sizes ($n_1=9$ and $n_2=9$) and our one-tailed level of significance ($\alpha=0.05$). The critical value for this test with $n_1=9$, $n_2=9$ and $\alpha=0.05$ is 21 and the decision rule is as follows: Reject H_0 if $U < 21$.

To this end, we do not reject H_0 because $24.5 > 21$ because We do not have sufficient evidence to conclude that the Online Video Games enhance EFL students Speaking Fluency. The MATLAB outputs from Figure 24 confirmed our results.

Figure 24: MANN-WHITNEY U TEST using MATLAB

```
>> [p,h,stats]=ranksum(pretest,posttest,'alpha',0.05,'tail','left')
p =
    0.0819
h =
    logical
     0
stats =
    struct with fields:
    ranksum: 69.5000
```

Based on the p-value of 0.0819 and the logical value $h = 0$, there is not enough evidence to reject the null hypothesis. That is, the results do not show the existence of a positive shift in the fluency of students after the experiment (Video games) from pretest to posttest at the 5% significance level.

2.3. Discussion

The study investigated the use of Online Video Games as a tool to enhance the speaking fluency of English as Foreign Language (EFL) students. The sample was Second Year LMD Students of English Department in Biskra University. Following the pretest /posttest design, we employed a combination of descriptive and inferential analyses to examine the results and draw conclusions.

In the descriptive analysis phase, we examined the data collected from the study participants. This analysis provided an overview of the participants' speaking fluency levels before and after engaging with Online Video Games. Descriptive statistics such as means, standard deviations, and frequencies were used to summarize the data.

Following the descriptive analysis, we conducted an inferential analysis to determine the significance of the observed differences. Based on the characteristics of the data and the research question, the Mann-Whitney U test was selected as the appropriate statistical test. Analyzing and interpreting data from the pre-test and post-test scores, thus making it suitable for assessing the impact of Online Video Games on EFL students' speaking fluency.

The results of the Mann-Whitney U test showed that the critical value (21) was less than the calculated U value, suggesting that there was insufficient evidence to reject the null hypothesis (H₀). The null hypothesis typically assumes that there is no significant difference between the groups being compared; in this case, the speaking fluency levels of EFL students before and after using Online Video Games. Therefore, the researcher concluded that the use of Online Video Games did not have a significant effect on improving EFL students' speaking fluency based on the available data.

While there have been many studies published on the topic of speaking fluency, there are very few studies associated Online Video Games with speaking skills that can be depicted as comparable to our findings. Comparable studies would be those that employed interventions that are similar to ours. Furthermore, we should compare our findings to studies that employed a similar experimental intervention. Our outcome measure was change in speaking fluency level, which can be compared with other studies that dealt with proficiency or knowledge level that was assessed immediately following the intervention. Comparable studies would have done the same.

We have identified a study that investigated The Effectiveness of an Educational Game for Teaching Optometry Students Basic and Applied Science. The article was published by Trevino et al (2016) in the journal PLOS ONE, involved 42 optometry students who were divided into two groups. One group played the Optometry Knowledge Challenge for 12 hours, while the other group received 12 hours of interactive didactic instruction. Both groups took a pretest and a posttest to assess their knowledge of the material. The results showed that there was no significant difference in the scores of the two groups on the posttest.

The students in the study also completed a post-intervention survey to assess their attitudes towards the two teaching methods. The survey results showed that the students who played the Optometry Knowledge Challenge found the game to be more enjoyable, engaging, and educationally valuable than the interactive didactic instruction. The findings of this study suggest that educational games can be an effective way to teach optometry students basic and applied science. The game-based approach was found to be just as effective as traditional didactic instruction, and it was also more enjoyable and engaging for the students. This suggests that educational games could be a valuable addition to the optometry curriculum.

Another study by Putra and Setyaningrum (2018) found that students who used edutainment software on their smartphones had a significantly higher interest in learning mathematics than students who did not use the software. The findings of this study suggest that edutainment can be an effective way to improve students' interest in learning mathematics. The study found that students who used edutainment software on their smartphones had a significantly higher interest in learning mathematics than students who did not use the software. The study also found that edutainment can make mathematics more engaging and fun for students, and that it can provide students with a variety of learning experiences.

Limitations:

1. **Sample size and characteristics:** The study was conducted with a specific sample of Second Year LMD Students of English Department in Biskra University. The findings may not be generalizable to other EFL student populations or educational settings. A larger and more diverse sample would enhance the external validity of the results.
2. **Time constraints:** The study may have been limited by the duration of the intervention. The impact of Online Video Games on speaking fluency could be more pronounced with longer exposure and engagement. Conducting a longitudinal study with an extended intervention period could provide a more comprehensive understanding of the potential effects.
3. **Generalization to other language skills:** The study focused specifically on speaking fluency, but Online Video Games may have different effects on other language skills such as listening, reading, and writing. Further research is needed to explore the potential benefits and limitations of Online Video Games for different language competencies.

4. **Game selection and variability:** The study did not examine the specific types of Online Video Games used or their variability in terms of linguistic challenges and learning opportunities. Different games may have varying levels of language complexity and interactive features, which could impact their effectiveness in promoting speaking fluency. Future research could explore the influence of specific game characteristics on language learning outcomes.

Recommendations:

1. **Further research:** More studies should be conducted to explore the potential of Online Video Games for EFL students' speaking fluency. Researchers can investigate different aspects such as the optimal duration of game-based interventions, the impact of different game genres on specific language skills, and the role of game design elements in facilitating language learning.
2. **Game customization and integration:** Game developers and educators can collaborate to create or adapt Online Video Games specifically designed to enhance EFL students' speaking skills. These games should incorporate interactive features, authentic language contexts, and provide opportunities for real-time communication with both native and non-native speakers.
3. **Teacher guidance and scaffolding:** Although Online Video Games provide an engaging platform for language practice, the role of teachers remains crucial. Educators can integrate video games into their teaching strategies by providing guidance, structuring activities, and offering feedback to maximize the learning potential of game-based interventions.

4. Pedagogical training and support: Teachers should receive training and professional development opportunities on how to effectively integrate Online Video Games into their language teaching practices. Institutions should provide resources and support to educators, enabling them to incorporate game-based learning approaches and leverage the potential benefits of technology in language education.
5. Longitudinal studies: Conducting longitudinal studies with extended intervention periods would allow for a more comprehensive understanding of the long-term impact of Online Video Games on EFL students' speaking fluency. Such studies can track participants' progress over an extended period, assessing whether the benefits of game-based interventions are sustained or potentially enhanced over time.

Overall, while this study did not find a significant effect of Online Video Games on EFL students' speaking fluency, it highlights the need for further exploration, customization, and teacher guidance to leverage the potential of Online Video Games as a tool for language learning.

Conclusion

This chapter presents a thorough evaluation of fluency criteria using a multi-stage approach. The process included a preliminary questionnaire, a pretest, an experiment phase, and a post-test, all strategically designed to assess the fluency levels of the participants reliably.

The preliminary questionnaire was used to select the appropriate sample for the study, ensuring that participants met the desired criteria. Following that, a three-phase procedure was implemented, starting with a pretest to establish the participants' initial fluency levels before any interventions were introduced.

The experiment phase involved 15 gaming sessions spread over 5 weeks, with the aim of enhancing fluency through specific interventions. The participants' progress was monitored and analyzed in real-time during these gaming sessions. Finally, the post-test was conducted to assess the participants' fluency performance after the experiment, allowing for a comparison with the pretest to measure improvement.

The combined findings from the preliminary questionnaire, pretest, experiment, and post-test provide a comprehensive understanding of the participants' fluency development. These results were interpreted and discussed, shedding light on the effectiveness of using Online Video Games as a tool to promote speaking fluency in EFL (English as a Foreign Language) students. Moreover, they offer valuable insights for further research in the area of English speaking fluency.

GENERAL CONCLUSION

GENERAL CONCLUSION

This study aimed to examine the potential of Online Video Games as a tool for enhancing the speaking fluency of (EFL) students. Many EFL students struggled to improve their speaking skills outside of the classroom, and this research project sought to address that issue. Previous research had shown that using video games in language learning could be beneficial, offering an enjoyable and engaging platform for practicing language skills. Online Video Games also provided opportunities for students to interact with both native and non-native speakers of the target language, creating a low-pressure environment that could help reduce anxiety and build confidence in speaking.

However, there was limited research specifically focusing on the effectiveness of Online Video Games for promoting EFL students' speaking fluency. Therefore, this study aimed to investigate whether Online Video Games could be a viable tool for improving EFL students' speaking fluency and to identify any challenges or limitations associated with this approach.

The study investigated the use of Online Video Games as a tool to promote the speaking fluency of EFL students. The selected sample was Second Year LMD Students of English Department in Biskra University. We opted for a quasi experimental research design, more specifically the pretest / post-test type, and a mixed method as a suitable approach. Afterwards we conducted a combination of descriptive and inferential analyses to examine the results and draw conclusions.

In this study, we analyzed data collected from study participants to examine the impact of Online Video Games on the speaking fluency levels of EFL (English as a Foreign Language)

students. We performed a descriptive analysis, which involved summarizing the data using descriptive statistics such as means, standard deviations, and frequencies. This analysis provided an overview of the participants' speaking fluency levels before and after engaging with Online Video Games.

After the descriptive analysis, we conducted an inferential analysis to determine the significance of the observed differences. We chose the Mann-Whitney U test as the appropriate statistical test based on the characteristics of the data and the research question. This test allowed us to analyze and interpret the pretest and post-test scores to assess the impact of Online Video Games on EFL students' speaking fluency.

The results of the Mann-Whitney U test indicated that the critical value was lower than the calculated U value, suggesting that there was insufficient evidence to reject the null hypothesis (H_0). The null hypothesis assumes no significant difference between the groups being compared, which in this case was the speaking fluency level of EFL students before and after using Online Video Games. Therefore, based on the available data, we concluded that the use of Online Video Games did not have a significant effect on improving EFL students' speaking fluency.

However, it is important to acknowledge the limitations of this study. Firstly, the sample size might not have been representative enough to draw generalized conclusions. Additionally, the study solely focused on one specific online video game, VALORANT, which limits the generalizability of the findings to other games or platforms. Moreover, the duration of the gaming session and the frequency of gameplay might have influenced the outcomes, suggesting a need for further investigation into the optimal parameters for incorporating video games in language learning.

In light of the limitations, it is recommended that future research explores a larger and more diverse sample, encompassing various Online Video Games to establish a more comprehensive understanding of their potential effects on EFL students' speaking fluency. Furthermore, researchers should consider incorporating additional assessment methods to capture a broader range of language skills beyond speaking fluency alone.

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APPENDICES

APPENDIX A: students survey

STUDENTS SURVEY

Full Name :	Age :
E-mail :	

Dear Participants,

Thank you for taking the time to participate in this survey. The purpose of this questionnaire is to assess the impact of online video games on speaking fluency. The survey consists of several questions that are aimed at collecting your opinions and experiences with playing online video games. Your responses will be kept confidential and will only be used for research purposes.

The information you provide will contribute to a better understanding of how online video games can affect speaking fluency, and it will also provide valuable insights for future studies on this topic.

1. How often do you play online video games?

Rarely Occasionally Regularly Always

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2. What type of online video games do you usually play? (you may pick multiple options)

- a. **Action**
- b. **Adventure**
- c. **Role-playing**
- d. **Puzzle**
- e. **Strategy**

3. What Gaming Platform do you usually use? (you may pick multiple options)

- a. **PC**
- b. **Xbox**
- c. **Playstation**
- d. **Switch**
- e. **Mobile**

1

4. How many hours do you spend playing online video games a day?

- a. Less than 1 hour
- b. 1-3 hours
- c. 4-6 hours
- d. More than 6 hours

5. Do you play online video games with other people?

- a. Yes
- b. No

6. If yes, how often do you communicate with other players?

Rarely Occasionally Regularly Always

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7. What type of communication Channels do you often use?

- a. Text Chat
- b. Voice Chat
- c. Both
- e. None

8. Do you use English as your primary language while playing online video games?

- a. Yes
- b. No

9. How comfortable you are when speaking in English while playing online video games?

- Very comfortable
- Somewhat comfortable
- Not very comfortable
- Not at all comfortable

10. Have you noticed any improvement in your English speaking fluency since playing online video games?

- a. Yes
- b. No
- c. Uncertain

11. In your opinion, do you agree that playing online video games has improved your communication skills with people from different countries and cultures?

Strongly agree	Agree	Neutral	Disagree	Strongly disagree
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12. Do you agree that playing online video games helped your English speaking fluency?

Strongly agree	Agree	Neutral	Disagree	Strongly disagree
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13. What are your most played online video games?

14. Finally, would you be interested in participating in further studies?

- a. Yes
- b. No

Thank you for your participation!

APPENDIX B: pretest evaluation grid

Pre-test: Evaluating EFL students' speaking fluency						
<p>Test Date: March, 18th</p> <p>Name of the Participant:</p> <p>Task: Online Discussion</p> <p>Evaluator: Djaghoubi Mohamed Aymen</p>						
	<i>Score</i>	1	2	3	4	5
<i>Criteria</i>						
<i>Word count</i> Counting the number of words spoken.						
<i>Pauses and hesitations</i> The number and duration of pauses or hesitations during speech.						
<i>Repetitions and self-corrections</i> The number of times a speaker repeats or corrects them during speech.						
<i>Pronunciation and intonation</i> The accuracy of a speaker's pronunciation and the ability to use appropriate intonation and stress.						
<p>Instructions:</p> <p>You will be given a topic to speak about. You will have 2-3 minutes to prepare your thoughts before speaking.</p> <p>Topic:</p> <ul style="list-style-type: none"> • Describe what you remember about your earliest gaming experience. 						

APPENDIX C: posttest evaluation grid

Post-test: Evaluating EFL students' speaking fluency

Test Date: **May, 12th**
 Name of the Participant:
 Task: **Online Discussion**
 Evaluator: **Djaghoubi Mohamed Aymen**

<i>Criteria</i> \ <i>Score</i>	1	2	3	4	5
<i>Word count</i> Counting the number of words spoken.					
<i>Pauses and hesitations</i> The number and duration of pauses or hesitations during speech.					
<i>Repetitions and self-corrections</i> The number of times a speaker repeats or corrects them during speech.					
<i>Pronunciation and intonation</i> The accuracy of a speaker's pronunciation and the ability to use appropriate intonation and stress.					

Instructions:

You will be given a topic to speak about. You will have 2-3 minutes to prepare your thoughts before speaking.

Topic:

- Talk about your thoughts and impression about the experiment you have undergone. .

RESUMÉ

L'étude examine l'utilisation des jeux vidéo en ligne pour promouvoir la fluidité de parole des étudiants d'anglais langue étrangère (EFL). L'objectif est d'explorer les avantages potentiels de l'incorporation d'éléments de jeu dans les environnements d'apprentissage des langues. À cet égard, une hypothèse de recherche principale a été avancée selon laquelle jouer à des jeux vidéo en ligne aide à améliorer la fluidité de parole des étudiants d'EFL à l'Université de Biskra. En utilisant une conception de recherche quasi-expérimentale, une approche mixte a été utilisée, combinant des méthodes de collecte de données quantitatives et qualitatives. L'étude a employé une conception prétest/post-test, où la fluidité de parole des participants a été évaluée avant et après leur participation à des sessions de jeu. Le processus de recherche a impliqué trois outils principaux. Tout d'abord, un questionnaire préliminaire a été administré pour identifier et sélectionner un échantillon approprié pour l'étude. Après la sélection de l'échantillon, les participants ont passé un prétest pour évaluer leurs niveaux de fluidité de parole initiaux. Ensuite, une intervention expérimentale a été mise en œuvre sous forme de sessions de jeu. Les participants ont joué à des jeux vidéo en ligne spécialement conçus pour améliorer leurs compétences de parole. Un post-test a été réalisé pour évaluer la fluidité de parole des participants après les sessions de jeu. Les résultats de l'analyse des données ont indiqué qu'il n'y avait pas suffisamment de preuves pour rejeter l'hypothèse nulle. Cela suggère que l'intervention des jeux vidéo en ligne n'a pas entraîné une amélioration significative de la fluidité de parole des étudiants d'EFL. Les résultats de cette étude ont des implications pour les enseignants de langues et les concepteurs de programmes d'études.

Mots-clés: Fluidité de parole ; Jeux vidéo en ligne ; Conception prétest/post-test ; Étudiants d'EFL ; Analyse statistique.