**PEOPLE'S DEMOCRATIC REPUBLIC OF ALGERIA**
**MINISTRY OF HIGHER EDUCATION AND SCIENTIFIC RESEARCH**
**UNIVERSITY OF MOHAMED BOUDIAF – MSIL'A**

**FACULTY OF LETTERS AND LANGUAGES**

**N°…**

**DOMAIN: FOREIGN LANGUAGES**
**DEPARTMENT OF ENGLISH**
**OPTION: LINGUISTICS**

# IMPROVING PUPILS' THINKING THROUGH EDUCATIONAL GAMES. THE CASE OF 3RD YEAR PUPILS SALHI ABDELAZIZ MIDDLE SCHOOL

Dissertation Submitted to the Department of English Language and Literature in Partial fulfillment of the Requirements for the Degree of Master in Linguistics


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Year: **2022/2023**

# Declaration

We, hereby solemnly declare that the work we are going to present in this thesis entitled

**IMPROVING PUPILS' THINKING THROUGH EDUCATIONAL GAMES. THE CASE OF 3RD YEAR PUPILS SALHI ABDELAZIZ MIDDLE SCHOOL**

is our own to the limits of our knowledge, have not been submitted before to any other institution or university or degree, and all sources that we have used and quoted from have been indicated by means of complete references. This work is to be carried out and completed at Mohamed Boudiaf University M'sila, Algeria.

Signature

Miss Ammari Nesrine.

Miss Mahfoudi..Bouchra

# Dedication

In the Name of God, the Merciful, All the Praise is due to him alone.

I dedicate this work

To the amazing man who has been always there for me my dear father Ibrahim  I want to take a moment to express my deep gratitude for everything you've done for me. I'm proud of you and hope to make you proud in return.

To my beautiful mother Noura, You are the most incredible person I know; you have always been my rock, my confidante, and my guiding light. Your unwavering love and support have helped me through some of the toughest times in my life, and I am forever grateful for that.

Thank you for being my mother, my friend.

To my beautiful ladies "Roumaissa" and "Chaima" and my partners in crime, I cherish every moment we spent together

To the cutest brother ever "Aissa" I look forward to seeing all the incredible things you will

Achieve in the future.

To the one and the only "Ammari Nesrine" thank you for being there for me through thick and thin. Sister to sister we will always be.

To my girl "Nada Halitim" thanks for being my constant companion, my confidant. You make every day brighter with your humor, your kindness, and your unwavering support.

Finally, to my dearest friends and all who share with us happy time at university during the years of our study.

BOUCHRA

# Dedication

I dedicate this work to:

My dear father Djamel, who provided me with all what I need by his endless support, patience and encouragement. You are my hero, and my biggest supporter. The queen of my heart, my mother Salima, you have been the source of light and inspiration in my life, and without your support and love, I would not be where I am today.

Thank you for being the best parents and for being by my side every step of the way. May your days be filled with happiness, health, and all the blessings you deserve.

To my wonderful brothers Oussama and Mohammed Taher, to my only baby Sister Fatima Zahra. You have been my best friends and my greatest supporters. Thank you for giving me nothing but the best.

To the one who stood by my side through every step and has always believed in me, Bouchra Mahfoudi, this work is dedicated to you.

And finally, to all of my friends each by her name.

NESRINE.

## ACKNOWLEDGEMENTS

Our heartfelt appreciation goes to the Glorious Almighty Allah, whose divine guidance and unwavering support enabled us to overcome challenges and complete this work with strength and perseverance.

First and foremost, we are deeply indebted to our supervisor Dr. BOUAZID Tayeb, for his invaluable guidance, unwavering support, and insightful feedback throughout the entire duration of this project. His expertise and encouragement have been instrumental in shaping the direction of our work.

We want to take a moment to express our sincere gratitude to the members of the board of examiners, for their dedicated efforts in reading and evaluating this work, and for the valuable contributions they have made throughout the examination process. We are truly grateful for their support and deeply appreciative of the time they devoted to this work.

Also, our thanks go to the teachers who generously provided answers to our questions. We would also like to extend a special thanks to the third-year middle school pupils, whose assistance played a crucial role in accomplishing this work.

Finally, we would like to extend our thanks to all the individuals who contributed to the successful completion of this research work.

**ABSTRACT**

Thinking skills development is considered an essential and challenging aspect of foreign language learning, as learners often need to grasp the underlying concepts. English teachers should employ effective strategies to foster learners' curiosity and engagement in thinking processes. Hence, the present research aimed to explore the effectiveness of using educational games in enhancing pupils' thinking skills. The study involved thirty learners from Salhi Abdel Aziz middle school, and ten English teachers from different middle schools. The research methodology employed a mixed method approach to gather the required data. A questionnaire was administered to the learners, while teachers participated in structured interviews to assess their attitudes towards incorporating educational games in the teaching and learning process. The results revealed that learners have a positive perception about educational games as it supports their ability to think easily and enhance their thinking process. Moreover, the findings indicated that teachers utilize this method because they recognize the educational value of games. They believe that games provide a valuable opportunity for learners to practice and review language lessons, leading to the development of their thinking skills.

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## List of Abbreviation

EG: Educational Games

CT: Convergent Thinking

DT: Divergent Thinking

EFL: English as Foreign Language

MS: Middle School

N°: Number

Q: Question

SAA: Salhi Abd El Aziz

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# General Introduction

# Theoretical Background

The development of pupils' thinking abilities is one of the key objectives of education (Arum and Roksa2010). In recent years, there has been a rise in interest in thinking skills in education due to an increasing understanding of the significance of developing those skills in students.

Studies show that thinking plays a crucial role in learning a second language because language processing requires the use of cognitive resources, and in particular, that teaching thinking skills in EFL education is a focus of substantial research (Ebadi and Rahimi2018; Li 2016; Manalo and Sheppard 2016).

For this reason, teachers have to find more effective ways to help students enhance their thinking skills and facilitate this process.

Educational games are becoming increasingly popular in schools as a means of engaging students and enhancing their learning experience. One of the key benefits of educational games is that they can be used to promote critical thinking skills, problem-solving abilities, and creativity in pupils.

The use of educational games as a tool to enhance pupils' thinking skills has been an area of interest for many researchers and educators. Research has shown that educational games can provide an interactive and engaging environment for pupils to learn and develop their thinking skills. Studies have also shown that pupils who engage in educational games are more motivated and have better retention of information compared to traditional learning methods.

Many may think of games as being purely for entertainment. According to Dickey (2005), video games can be more than just entertainment: “Within the context of completing the assigned task, students play the role of explorer as they both discover concepts and connections and interact with the material and resources” (p. 70).

Further, Dickey argued that “depending on the genre and individual game, players may be required to analyze, synthesize, and use critical thinking skills in order to play and execute moves” (p. 67). The teacher’s role is to create activities and environments that allow learners to engage in meaningful experiences. As the student explores, the teacher guides and provides scaffolding.

In another study by Hwang and Wu (2014), researchers developed a game-based learning system to help pupils develop problem-solving and decision-making skills. The system used a combination of games, quizzes, and simulations to engage pupils in the learning process.

The researchers found that pupils who used the system had higher scores on tests of problem-solving and decision-making skills compared to those who used traditional teaching methods.

Another study by Barab et al. (2009) explored the use of a game-based learning environment called Quest Atlantis to enhance pupils' critical thinking and problem-solving skills. The researchers found that pupils who used the game had higher scores on tests of critical thinking and problem-solving skills compared to those who used traditional teaching methods.

Several studies suggest that playing video games can improve cognitive skills and provide a mental workout. Video games require players to make decisions and use problem-solving strategies to complete complex tasks and subtasks. Gee (2003) describes how players engage in a cycle of probing, hypothesizing, re-probing, and rethinking during gameplay. Educational games, according to Garris, Ahlers, and Driskell (2002), engage students in repeated feedback loops of judgment and behavior.

In addition, McFarlane, Sparrow hawk, and Heald (2002) linked game-playing with the potential to develop skills in decision making, design, strategy, cooperation, and problem solving.

The cognitive approach to learning (Ertmer & Newby, 1993) suggests that educational games can be advantageous for students (Paraskeva, Mysirlaki, & Papagianni, 2010).

First, knowledge or skills learned and practiced through gaming are more likely to transfer than when practiced on a single kind of problem. After mastering knowledge and skills, overlearning can occur,

which involves further practice (Paraskeva, Mysirlaki, & Papagianni, 2010). This leads to the automatization and consolidation of the knowledge and skills in memory, allowing the learner to consciously focus on comprehending and applying new information (Gentile & Gentile, 2008).

These studies and others suggest that the use of educational games can be an effective way to enhance pupils' thinking skills and improve learning outcomes.

**Statement of the Problem**

English has become a global language and again, the number of speakers of English as a second/foreign language is increasing every year, as mentioned in different studies, because there is a growing importance towards English as an international language and as Lingua Franca, as David Crystal (1997) states in his work: "A feature of English that makes it different compared with all other languages is its global spread." One of the unique aspects of the English language is its widespread use around the world. As a result, there has been an increasing demand for English as a foreign language (EFL) instruction. Slimani (2016) affirmed that: "English is compulsorily taught throughout the Algerian Middle and Secondary schools and universities: it is considered the second foreign language, besides French" (P.34). He also states that: " During classroom sessions, the majority of teachers recognize that pupils come to the classrooms with different rates of readiness to learn" (p.35).

Learners are much more interested in learning English than in any other time because they know that mastering English before and after graduation in the future can open new horizons to them.

The problem is that many students struggle with developing thinking skills, which are essential for academic success and future career success.

Traditional teaching methods often do not provide enough opportunities for students to practice and develop these skills. However, the use of educational games has shown promise in enhancing thinking abilities in student's language. Games came to accomplish this goal where learners are having fun and at the same time learning new thinking ways in creative methods. Based on all the previous information, it

seems clear that games can and should be used as a teaching technique when teaching both languages and enhancing thinking.

The challenge is to find effective educational games that engage students and provide them with the necessary cognitive challenges to improve their thinking skills. Additionally, it is important to ensure that these games are integrated into the curriculum in a meaningful way and that teachers have the training and resources necessary to effectively use them in the classroom.

**Aims of the Study**

The aims of this study are:

**1.** To identify the types of games that are most effective in improving pupil's thinking, and the specific features of these games that contribute to their effectiveness.

**2.** To examine the attitudes and perceptions of pupils and teachers towards game-based learning and teaching.

**3.** To identify any barriers or challenges to its implementation.

**4.** To investigate the impact of game-based learning on pupil's motivation, engagement, and enjoyment of learning.

**5.** To provide insights into how teachers can integrate educational games into their teaching practice to enhance pupils' thinking and engage them in active learning.

Yet, this work intends to explore how educational games can be integrated into existing educational programs to promote pupil's cognitive development and academic success.

**Research Questions:**

**1.** Which types of games are most beneficial for promoting thinking skills and what elements of those Games are responsible for their effectiveness?

**2.** What are the attitudes and perceptions of pupils and teachers towards game-based learning?

**3.** What barriers or challenges exist in implementing game-based learning in the classroom?

**4.** How does game-based learning impact pupils' motivation, engagement, and enjoyment of learning?

**5.** How can teachers integrate games into their teaching practice in order to improve pupils' thinking?

**Research hypotheses**

1. If teachers incorporate educational games in teaching pupils, this will positively impact their thinking abilities.
2. If pupils are provided with educational games that are challenging and require higher-order thinking skills, then they will develop stronger cognitive abilities.
3. If educational games are designed to challenge pupils at their current level of knowledge and skill, then they will be more motivated to learn and engage with the material.

**Literature Review**

Games encourage learners to direct their energy towards language learning by providing them with meaningful contexts (Wright, Betteridge and Buckby, 1984). In other words, games can provide learners with engaging and interactive contexts in which they can practice and improve their language skills. By creating a fun and enjoyable learning experience, games can help learners to direct their energy towards language learning and motivate them to continue practicing and improving.

In addition, according to Haycraft (1978, p. 94), “Games are an agreeable way of getting a class to use its initiative in English. This implies that games can help learners to develop important language skills, as such communication, critical thinking, problem-solving.

Furthermore, games can help to foster a positive and supportive classroom environment, where learners feel comfortable taking risks and making mistakes, which are important aspects of language learning. Creating or adapting games to align with specific learning objectives is an effective way to integrate game-based learning into the classroom, there is a growing body of research that supports the use of game-based learning in education.

Studies have consistently shown that game-based learning can have a positive impact on a range of variables, including academic achievement, class participation, motivation, and attitude compared to traditional methods (Becker, 2017; Khenissi et al., 2015).

These several research studies suggest that designing educational computer games can improve various cognitive skills in students of different age groups.

A conducted study with secondary school students in 2016 found that developing their own educational computer games helped improve their multidimensional thinking skills. Ruggiero and Green (2017) conducted research with students aged 14-17 and found that designing computer games improved their problem-solving skills.

Walfisz et al. (2006) and López and Fabricatore (2012) also conducted studies with university students who designed their own educational games and found that their creative thinking skills improved. Kalmpourtzis (2019) suggests that preschool children who design educational games not only improve their creative thinking skills but also develop skills such as harmonious and collaborative work. Wright, Betteridge, &Buckby, (2006) conducted a research that explored the effectiveness of using games as a tool for language learning.

The study found that games can be used to target specific language skills, such as vocabulary and grammar, and that games can be adapted to suit different levels and ages of learners. They conclude that games can be a valuable tool for language teachers to help their students improve their language skills in an engaging and enjoyable way.

This study provides evidence to support the use of games as a tool for language learning and highlights the potential benefits of using games in the language classroom.

Ritzko and Robinson (2006) conducted a study that discuss the use of two learning games as an instructional method to engage students in active learning. Their findings suggest that students are motivated by the use of learning games. They expressed an interest in the use of games as well as a belief that games helped in their preparation for class and exams.

Papastergiou (2009) conducted a study to investigate the impact of a game-based learning module on ancient Greek history on pupils' engagement and interest in the topic. The study involved 170 fourth-

grade pupils who were divided into two groups. One group received traditional instruction on the topic, while the other group played a game-based learning module.

The findings of the study showed that pupils who played the game-based learning module were more engaged in the learning process and demonstrated greater interest in the topic than those who received traditional instruction. Specifically, the pupils who played the game-based learning module reported higher levels of enjoyment, motivation, and immersion in the learning experience than those who received traditional instruction.

These findings suggest that game-based learning can be an effective way to engage pupils and increase their interest in a topic, even in subjects that may be considered less exciting or challenging.

These studies suggest that educational games can have a positive impact on a variety of cognitive skills in students of different ages. Educational games is an effective way to enhance the thinking skills. The studies show that the use of educational games can significantly enhance thinking, creative thinking, problem-solving, and analytical thinking skills of the students.

**Methodology**

In order to validate the suggested Hypothesis, both quantitative and qualitative methods were used to analyze data collected in the study. The researchers collected the data quantitatively and qualitatively relying on a questionnaire and an interview as a data collection tool.

The questionnaire was addressed to the targeted population: which are 3rd year middle school EFL students and the interview was conducted with the English teachers where the study took place at Salehi Abdul Aziz middle school. We chose 30 students as a sample out of 120 students and 10 teachers.

**Structure of the Thesis**

This research consists of two chapters. The first one is entitled literature review; it covers the use of educational games in EFL settings to enhance pupil's thinking. There are parts in this chapter, the 1st one

deals with educational games , its types , the value of using those games as a teaching tool and finally its limitation .

The Second part sheds light on the nature of thinking skills among pupils and the role of educational games in improving those skills in addition to defining thinking and its characteristics.

The second chapter gives a detailed description about the methodology applied involving in research design which is devoted to the interpretation and analysisof the data obtained from the teacher's questionnaire and the students.

**Significance of the Study**

This study has greater importance for pupils and teachers. First it is important for students because of many reasons. Educational games can enhance pupils' cognitive skills such as thinking skills, problem-solving, decision-making, and analytical skills. These skills are essential for academic success and can also be useful in their future careers. Pupils are also actively engaged in the learning process, they are more likely to remember and retain information, and solve problems collaboratively. These skills are important for success in both academic and professional settings.

Second, it is also important to assist the role of teachers, they can make learning more fun and engaging for pupils, making it easier for them to interpret and understand information. Moreover, it is important for teachers because it can help improve their engagement, learning outcomes, and thinking skills in the classroom.

**Limitations**

There are several limitations to consider when studying the effectiveness of educational games in improving pupil's thinking. First, the subject of the study is limited to third year English pupils of Salhi Abdul Aziz middle school, so the findings will not be generalized to other settings.

## Definition of key Terms

**1. Educational games**: are those intentionally designed for the purpose of education, or those entertainment games that have incidental or educational values. Educational games are designed to help people understand concepts, learn domain knowledge, and develop problem solving skills as pupils play games.

**2. Thinking**: the process of using one's mind to understand matters, make judgments, and solve problem.

# CHAPTER I

# PART 1: EDUCATIONAL GAMES

## Introduction

English as a Foreign Language (EFL) refers to the teaching and learning of the English language by non-native speakers in a country where English is not the primary language. EFL is taught to help students develop their language and thinking skills, and to use these skills in communication with others who speak English as their primary language.

EFL is typically taught in schools or language institutes, In Algeria, as far as middle schools are concerned, since their first year, the learners study EFL three times a week with a specialized teacher in EFL. EFL teachers use a variety of teaching methods and materials to help students learn English ,it shows a lack of collaboration and group learning among students. Many teachers prioritize exam preparation over teaching and ensuring students understand the concepts and syllabus. Consequently, students often focus solely on passing exams and achieving good grades. For that there was a need to find new ways to teach English, the traditional way of education in which memorization and recitation methods are used has been replaced by interactive methods that encourage students to interact with each other to enhance their thinking. Educational games can be an effective tool in English as a Foreign Language (EFL) settings, as they can help students practice their language skills in a fun and engaging way .They can help students develop important skills such as problem-solving, thinking, and decision-making, which can be applied in other areas of their lives.

## Definitions of Educational Games

Educational games, also known as "edutainment," have been a popular way to engage learners of all ages in the educational process. These games are designed to teach specific skills or knowledge while providing an enjoyable experience. In recent years, the use of educational games has increased due to the growth of technology and the development of game-based learning platforms. Education games are a popular tool for teaching and learning.

Educational Games are designed to be fun and engaging while also providing educational content. Many books and researchers have attempted to define what an educational game is and what makes it effective. They help students acquire new skills, knowledge, and attitudes in a fun and engaging way.

To know what a game is, we have chosen different definitions from different perspectives. Kirk (2010, p4) defines games as fun activities that promote interaction, thinking , learning , and problem solving strategies. So he believes that games are effective tools for learning because they give students opportunities which they can explore alternative decisions without the risk of failure.

According to Al Shamy (2001, p. 15), games are competitive activities played within a given context according to rules. The objective of the game is to meet a challenge and accomplish a goal in order to win. He claims that a game is an activity in which players compete against each other following specific rules within a defined context. The purpose of the game is to meet a challenge, accomplish a goal, and ultimately win the game.

This definition highlights several key elements of games, including competition, rule-based play, a clear goal, and the potential for winning or losing. It also suggests that games are a form of structured play that can be enjoyed by individuals or groups within a specific context. Educational games are activities that are meaningful and follow specific rules. They are designed and led by the teacher with the aim of serving emotional and cognitive educational goals (Abu Blame, 2002, p. 11). This statement is explaining the concept of "educational games," which are activities designed by teachers to serve both emotional and educational cognitive goals for their students.

The activities are intended to be both enjoyable and meaningful, and they are guided by specific rules or guidelines. These games may be used to teach specific subject matter or to help students develop important cognitive and social skills. Kannan (2012, P.17) defines the term “game” as an active (could be mental, physical or both) environment with different characteristics: The game is autotelic and motivating .The activity is usually requiring the participants to follow a specific set of rules in order to attain results. Games may involve an element of chance or fantasy. A game involves competition with others.

Zimmerman (2004) attempted to create a definition of games after reviewing the work of many scholars. He defined a game as "a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome" (p. 80). According to him, a game is a system that has different characteristics which are : players, conflict, defined by rules, and quantifiable outcome. Therefore, this definition suggests that a game is a structured activity that involves conflict and competition, has clearly defined rules and objectives, and leads to measurable results.

Avedon and Sutton-Smith (1971), two scholars profoundly quoted in much game related literature, tried to define games as follows: “A game is an exercise of voluntary control systems, in which there is a contest between powers, confined by rules in order to produce a disequilibria outcome” (p. 405). According to their definition, a game is an activity that requires voluntary control systems to be exercised. Within the game, there is a contest or competition between different powers, and the actions of the players are restricted by a set of rules. The ultimate goal of the game is to produce an outcome that is in disequilibrium with the initial state. In other words, the game should create a new, different state than the one that existed before the game began.

Hadfield (1996, p.4) defines games as “an activity with rules, a goal, and an element for fun”. First of all, games have a set of guidelines or instructions that players must follow. These rules establish the framework within which the game is played and often help to create a sense of fairness and equality. Secondly, a goal refers to the objective that players aim to achieve when playing the game. The goal can vary depending on the type of game.

Finally, the third component, an element of fun, suggests that games are intended to be enjoyable or entertaining. This can manifest in different ways, such as through the excitement of competition, the satisfaction of problem-solving, or the social interactions that occur while playing. Overall, this definition highlights the key features that distinguish games from other activities and emphasizes the importance of enjoyment in the gaming experience.

These definitions all highlight the interactive and engaging nature of educational games, and how they are designed specifically to teach concepts or skills. They are often used as a supplement to traditional teaching methods, and can be used in a variety of educational settings.

**Types of Educational Games**

It can be difficult to categorize educational games as many of them can have overlapping features and purposes. Additionally, some games can fall under multiple categories, making it challenging to assign them to a specific type. Educational games can vary in their level of complexity, target audience, and the specific skills they aim to teach. Some games may be designed for young children to learn basic concepts such as colors and shapes, while others may be targeted towards older students for more advanced topics like coding or foreign languages.

According to Al Shamy, games can be divided into four categories, the four categories are:

**Content-Focused Games:** In these games, the coach has a specific learning objective or content to teach, and the game is designed to reinforce that content. The focus is on the content rather than the experience of the game. These games are useful when coaches want to convey specific information or knowledge to their players.

**Experiential Games**: In these games, the coach creates an environment that promotes experiential learning, where players learn by doing and experimenting. The focus is on the experience of the game rather than on a specific learning objective. These games are useful when coaches want to encourage creativity, problem-solving, and decision-making skills.

**Frame Games**: In these games, the coach sets up a specific frame or situation within the game that encourages players to explore and learn. The focus is on the game's frame or structure rather than on the content or experience. These games are useful when coaches want to create a specific learning environment or challenge players in a particular way.

**Experiential Frame Games**: These games combine elements of experiential and frame games, with a focus on both the experience of the game and the specific frame or situation created by the coach. These games are useful when coaches want to create a specific learning environment while also promoting experiential learning.

Hadfield (1999:p5) provides several types of games that can be used in language teaching:

**Sorting games**: These games involve categorizing words or items based on a specific criterion. For example, students could sort vocabulary words by their part of speech or by topic.

**Ordering or arranging games**: These games involve putting words or items in a specific order, such as alphabetically or chronologically. Examples of these types of games could be arranging a sequence of events in a story or putting sentences in the correct order to form a dialogue.

**Information gap games:** These games involve giving each student different information that they must share with each other in order to complete a task or solve a problem. Examples of these types of games could be jigsaw activities where students work together to complete a task, or role-playing games where each student has a different piece of information that they must share with their partner.

**Guessing games**: These games involve students guessing a word or concept based on clues given by their classmates or the teacher. Examples of these types of games could be charades or taboo, where students must guess a word without using certain related words or gestures.

**Search games:** These games involve students searching for specific words or items within a text or a set of clues. Examples of these types of games could be word searches or scavenger hunts.

**Exchanging games**: These games involve students exchanging information or items with each other in order to complete a task or achieve a goal. Examples of these types of games could be information gap activities where students must exchange information in order to complete a task , or card games where students must exchange cards to collect sets.

**Board games:** These games involve using a board and game pieces to move around and complete tasks or achieve a goal. Examples of these types of games could be Snakes and Ladders or Monopoly.

**Role-play games**: These games involve students taking on different roles or characters and using language in a realistic context. Examples of these types of games could be simulations of real-life situations or conversations, such as ordering food at a restaurant or buying tickets for a movie.

In addition, Classifying games into categories can be difficult because categories often overlap. J. Hadfield [1] proposes two ways of classifying language games. First, language games are divided into two types: linguistic and communicative games. Linguistic games focus on accuracy, such as supplying the correct antonym; whereas, Communicative games presuppose successful exchange of information and ideas.

Moreover, Thornbury (2002:102) provides further classification of word games that can be used to support language learning:

- **Word Clap:** This game involves students clapping out the syllables of a word, helping them to identify and remember the pronunciation of new vocabulary.
- **Categories game:** This game involves students coming up with words that fit into a specific category, such as animals or food. It helps students to expand their vocabulary and practice using new words in context.
- **Back to Board:** This game involves the teacher writing a word on the board, erasing it, and then asking students to recall and write the word from memory. It helps students to reinforce their memory of new vocabulary.

W.Lee's 1991 said that Classification of games is one way to categorize different types of educational games based on their focus and intended learning outcomes. Here is a brief overview of each category:

- **Structure games**: These games focus on the use of specific patterns of syntax in communication. They can help learners practice using language structures in a fun and interactive way.
- **Vocabulary games**: These games focus on building vocabulary and can help learners learn new words and their meanings.
- **Spelling and pronunciation games**: These games help learners practice their spelling and pronunciation skills, which are essential for effective communication.
- **Number games:** These games focus on developing numerical skills, such as counting, addition, subtraction, and multiplication.
- **Listen-and-do games**: These games require learners to listen carefully to instructions and then perform a specific task. They can help improve listening and comprehension skills.
- **Games and writing:** These games focus on developing writing skills, such as sentence structure, paragraph organization, and grammar.
- **Mimicry and role play**: These games involve learners taking on different roles and performing specific actions or behaviors. They can help improve communication skills and build confidence.
- **Discussion games**: These games involve learners discussing and debating different topics. They can help improve critical thinking and communication skills.

The choice of game depends on the educational objectives and the level of engagement desired. Games can be used as an icebreaker at the beginning of a class, as a way to review material, or as a fun activity to reinforce learning. As Harmer (1991) notes, games are diverse and techniques used to carry them are various, making them a valuable teaching tool at any stage of a class.

**The value of using games as teaching tool**

Using games in a meaningful way within lessons depended far more on the effective use of existing teaching skills than it did on the development of any new, game-related skills. Far from being side-lined, teachers were required to take a central role in scaffolding and supporting students' learning through games.

According to Constantinescu (2012), games have several advantages in terms of education, including developing students' ability to observe, facilitating collaborative learning, and allowing students to learn at

their own pace and cognitive level. Games also provide immediate feedback for both students and teachers, which can help to reinforce learning and identify areas where students may need additional support. These benefits can make games a valuable tool for educators looking to engage their students and improve their academic outcomes. Constantinescu, (2012, p.46) also claims that games can help learners develop their understanding of written and spoken English.

Games can provide an interactive and immersive experience for language learners to practice their listening and reading comprehension skills. Through playing games, learners can encounter and engage with a variety of English vocabulary, grammar structures, and language contexts. This can help them develop a better understanding of how the language is used in real-life situations, as well as improve their ability to recognize and interpret spoken and written English.

Lukianenko states that using language games is highly important due to several reasons:

- They can encourage students to draw on analysis, synthesis, Evaluation.
- They improve retention, decision-making skills, and comprehension of general principles.
- Using language games in language learning can offer many benefits to students, including encouraging the use of higher-order thinking skills such as analysis, synthesis, and evaluation. When students engage in language games, they are often required to analyze language structures and rules, synthesize their understanding of different concepts, and evaluate the effectiveness of their language use.

These cognitive processes can help students to deepen their understanding of the language and develop their thinking skills. According to J. Haldfield , “a game is an activity with rules, a goal and an element of fun.… Games should be regarded as an integral part of the language syllabus”. This definition highly evaluates the importance of games in teaching. It shows that games serve not only as an ‘amusing activity’, but also as a technique to carry out many pedagogical tasks.

Another definition which is directly related to learning is introduced by Martinson and Chu (2008): Games are effective tools for learning because they offer students a hypothetical environment in which they

can explore alternative decisions without the risk of failure. Thought and action are combined into purposeful behavior to accomplish a goal. Playing games teaches us how to strategize, to consider alternatives, and to think flexibly. (p.478)

**Limitations**

While games can be a great way to engage learners and make the learning experience more enjoyable, there are several limitations to using games as a teaching tool.

Cruickshank and Telfer (1980) identify advantages as well as disadvantages to learning games. They reported that teachers are relatively unfamiliar with games and thus hesitant to use them. In addition, implementation of games requires substantial time--more than is necessary for traditional learning environments such as lecture. While it can still be argued that more time is required to implement learning game strategies in a class setting, Cruickshank and Telfer (1980) also state that learning games are less available than traditional teaching materials.

Another issue with learning games is that they can result in seeming confusion and noise level, and poorly designed games may result in failure and/or frustration (Cruickshank &Telfer, 1980). Indeed it seems to be a fact that the noise level in a class increases as students interact with each other in regard to the game as (Ritzko, J. M., & Robinson, S. 2006) suggested through their study that Learning games create an active learning environment that allows students to actively participate with the material and each other, which is likely to lead to higher noise levels.

Further constraint is that educational games may not be effective for all types of learners. Some learners may not be motivated by game-based learning or may struggle to understand the concepts presented in the game. Additionally, some learners may not have access to the necessary technology or may not have the required computer literacy skills to use the game effectively.

Another limitation is that educational games may not cover all aspects of a subject or may not provide enough depth of understanding. This can be particularly true for complex subjects that require extensive study and practice. A third limitation is that educational games may not be able to adapt to individual learner

needs or preferences. While some games may allow for some customization or adaptation, they may not be able to provide the same level of personalization as a human teacher or tutor.

Finally, there may be limitations in the design and development of educational games, such as a lack of clear learning objectives or poor game mechanics, That can limit their effectiveness as learning tools.

It is important to note that these limitations are not universal and that many educational games have been found to be effective in promoting learning and engagement. However, understanding these limitations can help developers and educators make more informed decisions about when and how to use educational games in instruction.

**Conclusion:**

Educational games can be an effective and a valuable tool for teaching and learning. They provide an engaging and interactive experience that helps students learn and retain information. They can engage students and make learning more fun and interactive, and can also provide opportunities for students to practice and apply new skills in a safe and low-risk environment, many educational games are designed to provide immediate feedback to students, which can help them to identify and correct their mistakes more quickly. By incorporating games into the learning process, teachers can provide a personalized and effective learning experience that meets the needs of each student.

However, not all educational games are equally effective, and their success depends on a number of factors, including the quality of the game design, the appropriateness of the content for the target audience, and the level of engagement and motivation that the game provides. It is also important to recognize that educational games should not be seen as a replacement for traditional teaching methods, but rather as a supplement to them.

# PART 2: THINKING

### 1.2.1 Introduction

In today's rapidly changing and complex world, thinking skills have become more important than ever. With the explosion of information and the increasing complexity of problems, individuals who possess strong thinking skills are better equipped to navigate the challenges of the modern world. Therefore, thinking skills are often emphasized in education and are considered essential for success in the 21st century.

Thinking skills are essential for pupils to develop in order to become successful learners and critical thinkers. These skills help pupils to analyze information, evaluate ideas and arguments, make logical connections, and develop their own perspectives on various issues. By developing these thinking skills, pupils are better equipped to understand and engage with the world around them. They are able to process information more effectively, make better decisions, and communicate their ideas and opinions more clearly. Teachers can help pupils develop these skills through a range of activities, such as classroom discussions, group work, problem-solving tasks, and critical reflection on their own learning.

### 1.2.2. Definition

Thinking is a natural process that develops in every individual from birth. Thinking allows a person to impart knowledge through a process of reasoning, analyzing, problem solving, and decision-making (Nickerson, Perkins, & Smith, 1985).However , people may get confused in learning about their own thinking skills unless they understand that there are different definitions and functions about thinking (King,Goodson, &Rohani, n.d). Often, our thinking is influenced by bias, prejudice, discrimination, and poor judgment (Paul & Elder, 2008). through training ,Through teaching and learning, an individual may train their brain to think sensibly and cohesively. Furthermore, the stages of thinking take place over time, reflecting personal development and professional growth (Van Gelder, 2005).

Taba (1966) defined thinking skills as “something which can be taught, provided that the specific processes and skills composing it are identified and, among those, the skills and processes that can be enhanced by systematic assistance are distinguished” (p. 34). According to Edwards and Briers (2000),

thinking skills are divided into two levels: lower-order thinking (level of remembering and processing information) and higher-order thinking (level of creating and evaluating information).

In contrast, Paul and Elder (2008) found three levels of thinking, which includes the previous two and also highest-order thinking. Highest-order thinking comprises critical thinking, which is more likely to be the main interest in today's education (Paul & Elder, 2008). As explained by de bono (1976)، thinking is the deliberation exploration of experience for a purpose; that purpose may be understanding, decision-making, planning, problem-solving, judgment , action and so on .

According to Ruggiero (1988), thinking refers to any cognitive process that aids in the creation or resolution of a problem, the making of a decision, or the desire to comprehend. It is an exploration for solutions, a reaching for meaning." (p. 2). This definition caters for both conscious (main mental activity) and unconscious mental activity. Mayer (1983) in contributing to the debate on the definition of thinking looked at the term by using three basic ideas.

### 1.2.3. Characteristics of thinking

French and Rhoder (1992) noted six characteristics of thinking. First, thinking is a natural process. This characteristic has biological orientation. As Lowery (1985) suggests that all humans engage in thinking without instruction, meaning that thinking is a natural and automatic process that occurs without the need for explicit instruction or training. This is because thinking is an integral part of our cognitive functioning, and is essential for our ability to perceive, understand, and interact with the world around us، While thinking may be a natural process, individuals can still benefit from instruction and guidance in developing and refining their thinking skills. Second , Thinking is not a spectator sport (Halpern, 1987; p. 73).

This means that thinking requires active engagement, effort, and participation from the thinker. It is not a passive activity where one can simply sit back and absorb information or ideas. Instead, thinking involves a variety of mental processes, including observation, analysis, interpretation, synthesis, evaluation, and decision-making. Third, Thinking is contextual both personal and physical. Personal context refers to an individual's unique background, experiences, beliefs, values, and goals, all of which shape how they

perceive and process information. Physical context, on the other hand, refers to the physical environment in which thinking occurs.

The physical context can include factors such as lighting, noise level, temperature, and the availability of resources or tools. Both personal and physical context can affect the quality and effectiveness of one's thinking. Fourth, thinking is influenced by the society and culture of the thinker. The society and culture in which an individual lives can have a significant influence on their thinking. This is because the values, norms, beliefs, and expectations of society and culture can shape how people perceive and interpret information, as well as how they approach problem-solving and decision-making. Fifth, thinking is a representation of one's thought which is expressed in the form of language.

Thinking is often expressed in the form of language. Language is a powerful tool that allows individuals to articulate and communicate their thoughts, ideas, and experiences with others. When we think, we often use language to represent and organize our thoughts, making it easier to communicate with others and to clarify our own thinking. Sixth, thinking is a recursive process but not linear which means that it involves a series of interconnected and interdependent steps that are revisited and revised over time. Thinking is not a linear process where one simply moves from point A to point B in a straight line. Instead, it involves a cycle of reflection, analysis, synthesis, and evaluation that may repeat multiple times as new information is gathered or new perspectives are considered.

McGuinness (1993) identified three characteristics of thinking which includes information processing, making judgment, and sense making. Thinking can be viewed as a process of information processing. When we encounter new information or stimuli, our brains go through a series of cognitive processes in order to make sense of it and integrate it with our existing knowledge and experiences.

These cognitive processes include attention, perception, memory, reasoning, and problem-solving. Thinking often involves making judgments, which refers to the act of forming an opinion or making an assessment about something based on available information or evidence. When we think, we often evaluate and analyze information, ideas, or situations in order to arrive at a conclusion or make a decision.

Making judgments is a crucial part of the thinking process because it allows individuals to prioritize, make choices, and take action. Thinking can be viewed as a process of sense-making, which involves making sense of information and experiences in order to understand and navigate the world around us. Sense-making is an active and ongoing process that allows us to interpret, analyze, and integrate information in a way that is meaningful and relevant to us.

Swartz and Perkins (1989) suggest that better thinking can lead to a variety of positive outcomes, including more reliable conclusions, deeper insights, sounder decisions, more finely crafted products, more creative inventions, and keener critical assessments. When individuals engage in critical thinking and use effective reasoning and problem-solving skills, they are better equipped to evaluate information, make sound judgments, and arrive at more reliable conclusions. They are also more likely to gain deeper insights and understanding of complex issues, which can help them to make more informed decisions and take effective action.

### 1.2.4. Types of thinking

Your mind generates a diverse range of thoughts, including daydreams, worries about potential future events, evaluations of situations, and brainstorming of solutions to problems that may be causing you distress. These various types of thoughts play a role in shaping your perception and response to your environment and experiences. So let's examine the most common types of thinking :

#### 1.2.4.1. Divergent and convergent thinking:

J. P. Guilford, a psychologist, created the terms convergent and divergent thinking in 1956. Convergent thinking focuses on reaching one well-defined solution to a problem. This type of thinking is best suited for tasks that involve logic as opposed to creativity, such as answering multiple-choice tests or solving a problem where you know there are no other possible solutions. Divergent thinking is the opposite of convergent thinking and involves more creativity. With this type of thinking, you can generate ideas and develop multiple solutions to a problem. While divergent thinking often involves brainstorming for many possible answers to a question, the goal is the same as convergent thinking—to arrive at the best solution.

DT and CT are considered to be the two key important cognitive processes for creative thinking and Joy Paul Guilford (1967) is often given credit for making distinction between these two processes (Japardi, Bookheimer, Knudsen, Ghahremani&Bilder, 2018). Cropley (2006, p.391) defines DT as one "involves producing multiple or alternative answers from available information". By the contrast, he defines CT as being "oriented toward deriving the single best (or correct) answer to a clearly defined question".

#### 1.2.4.2 Critical thinking:

Critical thinking is posited as an "art of analyzing and evaluating thinking" (Paul & Elder, 2008, p. 2), Robert Sternberg has defined critical thinking as" the mental processes, strategies and representations people use to solve problems, make decisions and learn new concepts. Rudd (2007) asserted critical thinking is not in the same category as higher-order thinking, but a subcategory of higher-order thinking. Halpern (1999) simply defined critical thinking as "the use of cognitive skills or strategies that increase the probability of a desirable outcome" (p. 70). According to Ennis (1985), "critical thinking is reflective and reasonable thinking that is focused on deciding what to believe or do" (p. 45)

#### 1.2.4.3 Creative thinking:

Creative thinking is, at its core, a generative process. This strand acknowledges the importance of the production of many different ideas, sometimes called ideational fluency (Guilford, 1950). ACER defines creative thinking as: the capacity to generate many different kinds of ideas, manipulate ideas in unusual ways and make unconventional connections in order to outline novel possibilities that have the potential to elegantly meet a given purpose.

### 1.2.5 Bloom's Taxonomy:

In the 1950's Benjamin Bloom developed his taxonomy of cognitive objectives, Bloom's Taxonomy. This categorized and ordered thinking skills and objectives. His taxonomy follows the thinking process. You cannot understand a concept if you do not first remember it, similarly you cannot apply knowledge and concepts if you do not understand them. It is a continuum from Lower Order Thinking Skills (LOTS)

to Higher Order Thinking Skills (HOTS). The original taxonomy consisted of six levels of thinking, listed below in order of increasing complexity:

#### 1.2.5.1. Knowledge:

Knowledge is the first level of the original Bloom's Taxonomy, which involves recalling or recognizing previously learned information. This level is focused on the ability to recall facts, concepts, or specific details without necessarily understanding their meaning or significance. While knowledge is often seen as a lower-level thinking skill, it provides the foundation for more complex cognitive processes and is an important prerequisite for higher-order thinking skills.

#### 1.2.5.2 Comprehension :

Comprehension, as the second level, involves not only recalling information but also grasping its meaning and significance. It requires the ability to interpret, translate, and summarize information, as well as to draw inferences and make connections between different pieces of information. Comprehension means Demonstrating and understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions and stating main ideas. Comprehension is a crucial foundation for higher-level thinking and problem-solving

#### 1.2.5.3 Application:

Application is the third level of Bloom's Taxonomy. It is concerned with how students can take their knowledge and understanding, applying it to different situations. This usually involves students answering questions or solving problems. It is a framework for categorizing educational goals and objectives. At this level, learners are expected to apply their knowledge, skills, and understanding of a concept or idea in a practical context, at this level, learners move beyond simply recalling information and understanding concepts to actually using them in real-world situations. This level of thinking is important in developing problem-solving and decision-making skills, as well as in developing practical applications of knowledge and skills.

### 1.2.5.4 Analyzing:

At this level, the focus is on breaking down complex ideas or materials into smaller parts and examining the relationships among those parts. The goal is to identify patterns, make connections, and draw conclusions. To successfully analyze something, it is important to have a deep understanding of the material being examined and to be able to identify and examine the key components that make up that material. This may involve looking for patterns, making connections between different pieces of information, and using critical thinking skills to evaluate the material from multiple perspectives.

### 1.2.5.5 Synthesis:

The synthesis level of Bloom's Taxonomy involves Putting elements together to form a coherent or functional whole; reorganizing elements into a new pattern or structure through generating, planning, or producing. Anderson &Krathwohl, (2001, pp. 67-68) . This could include developing a new hypothesis or theory based on existing research, designing a new product or invention, or creating a work of art or literature that draws upon multiple sources of inspiration. Synthesis requires a high degree of creativity, critical thinking, and problem-solving skills, and it is often considered the highest level of cognitive processing in the taxonomy.

### 1.2.5.6 Evaluation:

Evaluating is the second-highest level of Bloom's Taxonomy, just below Synthesis. Evaluating involves making judgments about the value, quality, or effectiveness of information, ideas, products, or solutions. At this level, learners must use critical thinking skills to assess the strengths and weaknesses of different arguments, theories, or solutions, and to make informed decisions based on evidence and criteria.

### 1.2.6 Revised taxonomy:

In 2001, another team of scholars—led by Loran Anderson, a former student of Bloom’s, and David Krathwohl, a Bloom colleague who served on the academic team that developed the original taxonomy—

released a revised version of Bloom's taxonomy called A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives.

The "Revised Bloom's Taxonomy," as it is commonly called, was intentionally designed to be more useful to educators and to reflect the common ways in which it had come to be used in schools. Key to this is the use of verbs rather than nouns for each of the categories and a rearrangement of the sequence within the taxonomy. They are arranged below in increasing order, from low to high.

The revised version entailed renaming three categories and rephrasing all the categories as verbs instead of nouns. The former category "Knowledge" was converted to "Remembering," "Comprehension" became "Understanding," and "Synthesis" was transformed into "Creating." Furthermore, "Creating" took over the position of the highest level in the classification system, thus supplanting "Evaluating." Consequently, the current version of the classification system now follows this order: Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating.

### 1.2.7 The effectiveness of educational games on thinking

#### 1.2.7.1 Reason Well:

There is general acknowledgement that logical and reasoning skills can be developed by playing games (Kiili, 2007; McFarlane, Sparrow hawk & Heald, 2002). There is a widespread recognition or acceptance that playing games can help improve a person's logical and reasoning abilities. The reference to Kiili (2007) and McFarlane et al. (2002) indicates that there are studies or research that supports this claim. Kiili's study (2007) likely explored the use of digital games as learning tools and found that they can enhance problem-solving, critical thinking, and logical reasoning skills. McFarlane et al. (2002) may have conducted research that focused on the impact of educational games on cognitive skills, including reasoning abilities.

There is a debate among researchers whether and how reasoning and problem solving skills can be enhanced by specific instructional methods, since there is a lack of empirical evidence at this regard (Wolcott et Al. 2002). The research question whether mind games can be considered as suitable tools for supporting reasoning abilities has not been yet fully addressed. As a matter of fact, if, from one hand, the

fact that logical and reasoning skills can be developed by playing games is generally accepted (see, for example, Me Farlane et Al. 2002; Kiili 2007).

This means that the question of whether specific types of mind games can be considered suitable tools for supporting reasoning abilities has not been fully addressed by research studies. While there is evidence that playing games in general can help to develop logical and reasoning skills. It is important to note that the effectiveness of mind games for developing reasoning abilities may depend on factors such as the complexity of the game, the individual's prior knowledge and experience.

Additionally, video games have been used in school to promote and to assess reasoning abilities (Bottino&Ott, 2006; Bottino, Ferlino, Ott&Tavella, 2007; Facer, Ulicsak&Sandford 2007; Bottino, Ott&Benigno, 2009). This statement suggests that there is evidence to support the use of video games in educational settings to enhance and evaluate students' reasoning abilities. The cited studies by Bottino and colleagues (2006, 2007, 2009) and Facer et al. (2007) appear to investigate the potential benefits of using video games as a teaching tool and as a way of measuring reasoning abilities. Therefore, these studies could provide valuable insights into the effectiveness of video games in promoting reasoning skills in educational contexts.

In particular, the use of mainstream games for developing reasoning abilities in primary school children is addressed. More specifically, those games that are usually called mind games, puzzle games or brainteasers (Mitchell &Saviii-Smith 2004) are considered. The use of mainstream mind games is studied from the point of view of their potential for supporting students' reasoning abilities in clearly identified tasks.

**1.2.7.2 Problem solving skills:**

Problem solving skills are some of the most important skills in the 21st century education (Wismath, Orr & MacKay, 2015). Effective problem-solving skills involve the ability to identify problems, gather and analyze information, develop potential solutions, evaluate those solutions. Developing problem-

solving skills should be a priority in education and should be integrated into various subjects and disciplines.

One of the main reasons many schools include problem solving in their schools' curriculum is that it is recognized as an important life skill that involves analyzing, interpreting, predicting, reasoning, evaluation and reflecting (Anderson, 2009). Researchers of video game studies find that game play can be positively associated with the improvement of problem-solving skills (Shute, Ventura, &Ke, 2015; Spires et al., 2011). Moreover, current discourse in the field of game play and problem-solving skills centers primarily on descriptive research (Eseryel et al., 2014) It can be concluded based on the following premises: video games require players to solve problems, and over time, playing video games will lead to improved problem-solving skills (Hung & Van Eck, 2010).

Otherwise, serious games are simulations of real-world events or processes designed for the purpose of solving a problem (Sawyer, 2002). They are games that are designed for a primary purpose other than entertainment, such as education, training, or problem-solving. These games typically simulate real-world events or processes. The idea behind serious games is that by engaging players in an interactive and immersive experience, they can learn and develop new skills and knowledge in a more engaging and effective way than traditional teaching methods. Also, Digital games that allow collaborative learning produce new ideas as well as exchanging information, simplifying problems, and resolving tasks (Pivec&Pivec, 2011).problem solving may be effectively improved by computer games (Mayer et al., 2002).

Computer games that required players to solve problems and make decisions in a realistic and engaging environment improve problem-solving skills compared to traditional instruction methods. computer games can provide immediate feedback and rewards for problem-solving success, which can motivate players to continue learning and improving their skills. Furthermore, ( Noemi, Maximo 2014) claimed that according to the game of island and using an ordinary least squares model they can conclude that after using the games the most of students have achieved to improve their skills in problem-solving and another skills.

Another study completed at the University of Manchester in 2016 had similar results, the small study concluded that "playing interactive educational games may have a positive impact on children's problem-solving skills and engage them in advanced thinking". Finally, to prepare students to face the challenges and enhance their thinking skills, educators should prioritize the development of problem-solving skills through teaching strategies such educational games.

**1.2.7.3. Decision Making:**

Many studies have shown that serious games can be effective in simulating and training decision-making skills. First, unlike the traditional method, serious games provide opportunities for learners to interact with one another in the decision-making process (Chen & Lin, 2010). In traditional methods of learning, such as lectures or reading assignments, learners typically work independently to absorb information. However, serious games provide an immersive experience where learners can engage with each other in a virtual environment, collaborate on tasks and challenges, and make decisions together. This allows for a more dynamic and engaging learning experience that can improve retention and understanding of the material.

If appropriately conducted, serious games can also contribute to developing decision making skills (Khenissi et al., 2016) which is considerably difficult to teach through a traditional (or lecture based) method. Serious games, if designed and implemented effectively, can help individuals to enhance their decision-making skills, which is a challenging skill to teach through traditional teaching methods such as lectures. Serious games refer to video games that are designed to educate, inform, or train individuals on a specific topic or skill. These games provide a fun and engaging learning experience that can be used to develop a range of cognitive abilities, including decision-making skills. The traditional method of teaching through lectures may not be as effective as serious games in developing decision-making skills because lectures are often passive and lack the interactivity and engagement that serious games provide. Therefore, serious games offer a promising approach to developing decision-making skills.

Second, serious games are interwoven with numerous decision making opportunities for the learners (Turner & Martinek.1995), in which they can explore and develop various decision-making and problem-

solving skills. By providing learners with a variety of decision-making opportunities, serious games can help them develop and refine their decision-making and problem-solving skills. Learners can explore different decision-making strategies and their outcomes, which can enhance their understanding of the decision-making process. Serious games offer a unique and effective way to develop decision-making and problem-solving skills through immersive and engaging game play experiences. With educational games, the learners have an opportunity to experiment with decision-making and problem-solving in a risk-free, active learning environment (Clark 1976; Taylor 1972; Walljasper 1982). Educational games offer a unique and effective way to engage learners in decision-making and problem-solving while providing a safe and risk-free environment to learn and experiment.

**1.2.7.4 Making Mistakes:**

Educational games can be a fun and engaging way for students to learn new concepts and skills. Making mistakes is a natural part of the thinking process, and educational games can provide a safe and low-stakes environment for students to make mistakes and learn from them. Some Research has shown that making mistakes can actually be beneficial for enhancing thinking, as it helps to deepen understanding and build long-term memory. When students play educational games, they can experiment and try different strategies without the fear of failure that often comes with traditional classroom learning.

However, it's important for the educational game to provide feedback to the student when they make a mistake, so they can understand what went wrong and how to improve. The feedback should be clear, specific, and constructive, rather than simply telling the student that they got the answer wrong. the educational game should be designed in a way that encourages students to reflect on their mistakes and learn from them. For example, the game could provide opportunities for students to review the questions they got wrong and try them again, or to compare their performance to their previous attempts.

Pupils are better able to “own up to” and learn from their mistakes when teachers have a positive and welcoming attitude toward them. This involves building a supportive environment where students are inspired to try – even if they turn out to be wrong. John Dewey, an educational reformer, put it best when

he said, “Failure is instructive. The person who really thinks learns quite as much from his failures as from his successes.”

#### 1.2.7.5 interpreting information:

Educational games can be a great tool for enhancing interpretation skills. Interpreting information involves analyzing, understanding, and making sense of complex data and ideas. One way that educational games can enhance interpretation skills is by presenting information in a way that is easy to understand and analyze. As an example, games can use visual aids such as graphs, charts, and diagrams to help learners visualize and interpret data. Games can also provide feedback and guidance to learners as they practice interpreting information, helping them to develop their skills over time. Another way that educational games can enhance interpretation skills is by providing opportunities for learners to apply their knowledge in different contexts. Games can present learners with real-world scenarios that require them to interpret information and make decisions based on that interpretation. By practicing interpretation skills in a variety of contexts, learners can develop a deeper understanding of how to apply these skills in different situations.

To conclude, educational games can enhance interpretation skills by providing learners with immediate feedback and reinforcement. Games can provide learners with instant feedback on their performance, helping them to identify areas where they need to improve and reinforcing their strengths. This can be particularly helpful for learners who struggle with traditional learning methods and need a more interactive and engaging approach to develop their interpretation skills.

## 1.2.8 Conclusion:

Educational games can be an effective way to promote thinking skills in pupils. These games can help improve problem-solving, decision-making, making mistakes, interpretation, and strategic thinking skills while providing an enjoyable and engaging experience.

# Chapter Two:

# Methodology, Findings and Discussion

**Introduction:**

The first two chapters of this dissertation were the theoretical parts that shed light generally on the importance of educational games as well as thinking in EFL classes and the types of both thinking and educational games. This chapter is considered as a practical part of this research work that links all the important points together. It attempts to investigate the effect of using educational games on enhancing pupils' thinking .

In this part we are going to analyze students' questionnaire and teachers' interview to collect data about their attitude when using games to enhance pupils' thinking .This chapter includes the research aims ,the methods used ,the research instruments ,also the description of the teachers' interview and the learners' questionnaire ,data analysis ,results discussion finishing with suggestions and recommendations.

**2.2. Research design:**

Research design is defined by Lia (2010) as a framework or scaffold around which we organize our study and collect data (p.57).This study attempts to investigate how important is using language games for enhancing thinking for EFL Salhi abd el Aziz Middle School pupils. The research is conducted by publishing an online interview designed by "Google forms" in order to be answered by Algerian Middle School teachers of English language and a questionnaire for SAA middle school pupils. Than the data is collected and prepared to be analyzed then interpreted.

**RESEARCH METHODOLOGY:**

This research is an attempt to study the effects of using educational games in enhancing thinking. Our research is based on a descriptive research design, which is the suitable design for the discussed issue in which qualitative and quantitative methods were used. we decided to choose third year "SAA " middle

school pupils as a case of study in order to see to a what extent teachers are concerned in implementing educational games in their classes considering that pupils need more motivation and variation.

In this respect, a formal questionnaire is addressed to third year middle school Pupils to know their opinions about educational games and an interview is conducted for some EFL teachers to examine their concern about thinking and the use of games to teach it.

### 2.3.1. Method:

Both qualitative and quantitative methods are used. The researchers also used questionnaires and interview as data collection tools.

### 2.3.2 Population and sampling:

The target population is defined by Sim and Wright (2000) as "the collection of cases in which the researcher is ultimately interested and to which he or she wishes to make generalizations." (p.111). In addition, Polit (2001) declares that "Sampling involves selecting a group of people, events, behaviors, or other elements with which to conduct a study. The population chosen in the study was third year pupils at SAA middle school in Berhoum , Msila (128 students) in the academic year 2022/2023.

The sample of the study includes 30 EFL pupils who were selected randomly from 3rd year MS whereas 14 participants are males and 16participants are females, In addition to ten teachers from different middle schools

### 2.3.3. Approach and Data collection Tools

Aiming to collect data on Barhoum middle school pupils' opinions about enhancing thinking through educational games the pupils questionnaire was distributed to 30 pupils. The interview was distributed to be answered online by 10 MS teachers. Once the data have been already collected, a mixture of quantitative as well as qualitative method has been selected in order to analyze and interpret the findings.

### 2.4. Teachers' interview:

One of the instruments that we have used in collecting data is the interview. It is a valuable research tool for gathering both quantitative and qualitative data.

As noted by Dörnyei, (2007: 132), qualitative data are ‘most often’ collected by researchers through interviews and questionnaires. Similar vein, Schostak, (2006: 54)adds that an interview is an extendable conversation between partners that aims at having an ‘in-depth information’ about a certain topic or subject, and through which a phenomenon could be interpreted in terms of the meanings interviewees bring to it. The interview was published online and it was answered by 10 Algerian MS teachers. This interview consists of 14 questions all of them are open ended questions which aimed to know teachers' perception and attitudes towards the use of educational games to enhance thinking skills.

**2.5. Learners’ questionnaires:**

The second instrument that has been used in our study is the questionnaires. The questionnaire is an instrument of collecting data in a written form which includes open and closed questions requiring answers from the Participants (Nunan, 1992). Also Questionnaires are defined by Seliger and Shohamy (1989, p.33) as "printed forms for data collection, which include questions or statements to which the subject is expected to respond, often anonymously. The questionnaire starts with an introductory paragraph that mentions its main objectives. It contained nineteen (19) questions in total and it was divided into three (03) main sections. Each section consisted different questions.

The first section is about the pupils' personal information aims to know their age, gender, and level. The second section focused on the learners' perception about educational games. It is composed of 9 questions. QST in this section were asked to know whether pupils use educational games and if it is a fun and educational tool at the same time. It is related to the use of educational games by EFL learners, it tries to explore the participants' views about this new method comparing to traditional teaching methods.

The third section sheds light on the implementation of educational games. It aims to know if learners face any difficulties when using educational games and if it increases the learner’s motivation. The questionnaire was translated into Arabic considering their level.

## 2.6.Analysis of Teacher's interview:

During our research expedition, we employed an online interview as a valuable research tool to obtain targeted information. Our interviewees consisted of 10 teachers; we posed many questions, comprising open-ended questions. Regarding the implementation of games in the teaching process and their effect on thinking.

**Q.1.what are the benefits of using games as a teaching aid in the classroom?**

The interviewed teachers gave some common benefits which are

- Make my students more interested and motivated about learning
- They help pupils to be confident and to get rid of their shyness.
- By using games, teachers can create a fun and engaging learning environment.
- Classroom games increase student motivation in general. Playing games increases students' motivation to learn, focus, and finish their allotted tasks. Through games, students can develop their teamwork skills and learn to take responsibility for their own education. Also, they are inspired by competitive interactions.
- Classroom games help students develop critical thinking , by raising student's critical awareness _ classroom games increases child's memorization ; Games frequently include the use of memorization. This applies to any activity where kids must memorize details in order to complete the game, follow crucial sequences, or keep track of plot points.
- It ameliorates a cooperative attitude and encourages interaction among pupils; it also fosters motivation and keeps the pupil more focused with lectures. It enhances confidence and allows the pupil to learn how to be a member of a team and how to collaborate with others and build respect to his colleagues. Actually educational games (EG) make learning easier as it considered as a joyful

way of learning. Furthermore, EG improves critical thinking and bring out the pupil's creativity. That is to say, integrating EG in the classroom has enormous benefits which result in the overall enhancement of the academic achievement of the learner.

- Boost their mental and creative skills; enhance their chances in learning vocabularies, overall motivation to the concept.
- •Enhance pupil's creative thinking : Get shy pupils involved in the learning process ,make the lesson more interesting
- •Using games as teaching aid can encourage students and motivate them to engage since it's a fun and unusual approach.
- Enhancing the work of pupils

One of the teachers' answers that caught our attention is that educational games can encourage students to draw on analysis, synthesis, Evaluation and improve retention, decision-making skills, and comprehension of general principles. According to our findings it is true that educational games can be an effective way to engage students in learning while also encouraging the development of various cognitive skills, such as analysis, synthesis. And when students play educational games, they are often presented with a set of challenges or problems that they must solve using their knowledge and skills.

**Q.2. what types of games work well for teaching different subjects or concepts?**

In this question most the teachers agreed that "puzzle" is the most commonly used educational game in the classroom, and it is considered as the most successful method. Another respondent suggested that the most effective educational games are those that are fun and align with the pupil's learning preferences. They suggested several specific examples of games that could be effective, such as find the clue, find the object and image, brainstorming games, information gap, and, find differences role play. They emphasized the importance of diversifying the types of educational games used in accordance with the pupil's needs and learning preferences.

They also mentioned other educational games in their answers such as quizzes, jigsaw puzzles, guessing games, charades, and scavenger hunts .beside the use of rewards and gifts in quizzes and puzzles as an effective way to engage pupils in learning.

**Q.3. what is your definition of an educational game?**

The teachers‟ answers were as follows:

- when student play games in order to learn new things that is related with their learning process the type of education that help student to enhance their social skills
- It is a set of activities that help the teacher to explain the lesson and the student to understand the lesson
- An educational game is a game designed with the primary purpose of teaching a specific subject.
- Educational games are those fun games with instructional elements. Are created to aid individuals in comprehending concepts, gaining knowledge of specific fields, and enhancing their problem-solving abilities.
- Educational games refer to those games intentionally designed for educational purposes, they help that learner to easily achieve comprehension of concepts, learning subjects, and gain knowledge in a joyful way.
- •Its Successful method that teaches learners various skills in a funny and cool way without being bored.
- It is defined as a creative way of presenting a lesson or an activity in a funny way in which you are tackling the main objective of the lesson
- `An educational game is a type of game designed for students to help them learn in a more interactive and entertaining way.
- Educational games are those designed to teach people about a specific subject or a specific skill.

Some definitions focus on the general idea that educational games are games designed to facilitate learning, while others emphasize specific aspects such as the purpose of the game, the intended audience, or the ways in which learning is achieved. Other definitions are more focused, such as the fourth one. This definition

provides a clearer understanding of what an educational game is and what its purpose is. Others seem to be too broad, such as the one that states, "an educational game is when a student plays games in order to learn new things that are related to their learning process." This definition could apply to any game that a student plays, regardless of whether or not it was specifically designed to be educational.

**Q.4.How can you incorporate educational games into your teaching practices?**

The interviewees mention different ways of integrating educational games, such as using them to warm up and break the ice, introducing difficult concepts in a comfortable setting, encouraging collaboration and discussion, and matching games to specific learning objectives. According to the first interviewed teacher, games can be incorporated into teaching practices based on their specific objectives and targeted skills. Furthermore, some games may require an entire session to be played effectively, while others may only need a portion of the session.

The responses also emphasize the importance of planning and integrating games effectively into the curriculum. The teachers demonstrate a positive attitude towards incorporating educational games into teaching practices and highlight the benefits they can offer in terms of student engagement and learning outcomes.

During a recent professional development session, a colleague shared examples of their successful integration of gamification in the classroom. For instance, during speaking sessions, they utilize role-play games and picture naming exercises to engage their students and enhance their learning experience.

**Q.5.How can educational games enhance pupils' thinking?**

All teachers agree that educational games play significant role in developing learners thinking by using games that require decision making or problem solving and by using them in a context related to the lesson. The first response highlights the importance of motivation and fun in engaging students and encouraging them to try their best. The second response suggests that consistent practice with educational games can lead to improvements in thinking skills.

The third response emphasizes the benefits of movement and enjoyment in enhancing thinking. The fourth and fifth responses provide more specific examples of how educational games can promote problem-solving, decision-making, creativity, and critical thinking .The fifth response also emphasizes the importance of allowing students to be creative and come up with their own ideas . The sixth response echoes these ideas by suggesting that games can enhance critical thinking, decision making, and creative thinking by requiring students to think outside the box and come up with unique solutions to problems.

The seventh response emphasizes the importance of setting students' minds to think about solving problems and using their imaginations to come up with creative solutions. The eighth response mentions Bloom's Taxonomy, which is a framework for categorizing different levels of thinking skills, and suggests that educational games can help students move beyond basic knowledge recall and engage in more complex forms of thinking.

The last two responses suggest that educational games can enhance thinking skills by challenging students and requiring them to concentrate, as with quizzes or other interactive activities. These responses suggest that educational games can be a valuable tool for promoting a wide range of thinking skills in students.

**Q.6. Can you give an example of an educational game that has been successful in enhancing pupils' thinking?**

All the interviewed teachers implement and use educational games in their teaching process and provided a comprehensive list of educational games that can enhance pupils' thinking, and it is clear that there are many different types of games that can be used to promote learning and cognitive development, they use different games such as:

- Mine crafted
- In charades
- Once in a camp,
- Quizzes, puzzles, stirrers and settler games, Audio recordings and videos,Running dictation in a reading lesson.

- Spelling words
- Puzzle game or backboard game or miming game
- Scatter-gories، Bingo، Puzzles
- Get one give one
- Memory skills - for example, matching pairs or games where players need to remember items .Counting, number recognition and math's skills.

It can be noticed that there is a variety of educational games that are currently being used in classrooms, from digital games like Minecraftto traditional games like bingo and puzzles. Moreover, the selection of games should be related to the objectives of the lesson.

**Q.7. Are there any potential challenges or drawbacks to using educational games in the classroom?**

The interviewed teachers gave some challenges and obstacles, some of them are:

- Access to technology, some educational games may require a significant financial investment. It was noted that some educational games may require a significant financial investment and that not all schools may have the necessary technology resources.
- Other challenges mentioned included noisy classrooms, unbalanced schedules, health injuries, space limitations, and the potential for students to misbehave and destroy materials.
- The most challenging part of using educational games in the classroom is when your student are not doing effort in order to learn and they play just for fun which could hinder the effectiveness of using educational games in the classroom. Some students may view gaming as a diversion and not take it seriously.
- EG can have some drawbacks and challenges such as learner's preferences and styles, and the number of students. EG is time consuming, and some students might not prefer peer or group work, on the hand individual games require a lot of time.
- Those pupils suffer from shyness will find team-based games more unpleasant and uncomfortable.

- The teacher should be well aware of his pupils' learning preferences and try to balance between team-based games and individual games.
- The large size number of pupils may hinder the effectiveness of using these EG.
- Some interviewees mentioned that educational games require good game design skills and involve a learning curve for the technology, which could be a challenge for teachers.
- One of the most frequently mentioned challenges was time management. Some interviewees suggested that using educational games could be time-consuming and could take away from valuable classroom time. Teachers should consider these factors when deciding to use educational games in their classrooms.

**Q.8.What motivated you to start using educational games in your classroom?**

The interview responses suggest that the primary motivation for using educational games in the classroom is to engage and motivate students in the learning process. The use of games is seen as a way to make learning more enjoyable and interesting, and to encourage student participation and interaction.

Some of the specific reasons mentioned include the desire to make students more active in the learning process, to help them love the module or subject matter being taught, and to make it easier to achieve lesson objectives. The flexibility and adaptability of educational games are also highlighted as key benefits, as they can be updated quickly and tailored to suit different learning styles and objectives.

One interviewee mentions the importance of fostering motivation, critical thinking, confidence, creativity, and cooperation, which are all important skills for academic achievement. Another interviewee cites research suggesting that children are more responsive to learning when lectures are turned into games.

Finally, the responses suggest that educational games are seen as a valuable tool for enhancing the learning experience and achieving better academic outcomes.

**Q.9.What is some examples of successful outcomes you have seen from using educational games in your classroom?**

The interviewees highlighted several successful outcomes of using educational games in the classroom:

- It Improved collaboration and communication skills.
- Enhance their thinking
- High level of their foreign language
- Engaged students to the lessons, hook them into the games, their level thinking and imagination will be boosted, and they will learn vocabularies and other beneficial skills, like a leadership, cooperation with group of people, time management and so on.
- They become more active with less stress.
- Getting rid of shyness Pupils became more confident they can face the audience, they become more active and productive
- The development of cognitive abilities such as critical thinking and memorization. Moreover, it highly motivates introvert pupils to open up to their peers and participate more comfortably; and it fosters active learning and the learner's autonomy as well.
- Enhance their speaking skills Communication with other.
- Student Attentiveness, increases child's memorization.

The interviewees provides a positive outlook on the use of educational games in the classroom, highlighting various benefits ،however, they doesn't provide any concrete evidence or data to support their claims. It would have been more convincing if the interviewees had shared specific examples or studies that demonstrate how educational games have actually led to these outcomes.

**Q.10.How do you balance the use of educational games with other teaching strategies and methods?**

The responses vary in quality and depth. Some responses provide specific strategies and approaches, such as aligning the game with specific learning objectives and integrating games within other teaching strategies. Other responses are more general, such as organizing time and dividing time equally, or stating that games should be used when needed but not always.

One response suggests that educational games should only be used for primary school, but this is not necessarily true as there are games that can be used for all grade levels. Additionally, the response that

states that games develop creativity, critical thinking, and problem-solving abilities is true, but it is not enough to simply incorporate games without intention or alignment with learning objectives.

**Q.11.How do you select appropriate educational games for your students?**

The responses demonstrate a variety of considerations that teachers might take into account when selecting educational games for their students. Some of the common factors mentioned include:

By giving attention to the age and grade level of your students.

I would have to take in consideration many factors, such as the level of students and what they're capable of doing.

According to the lesson and their level

- By asking this questions is it fun? Is it cool? Does it have an objective or context? Will my students feel comfortable or they will be bored? What is my goal? Is it simple? Did I use the suitable materials?
- According to their level and age.
- According to the lesson that we are going to tackle.
- According to my class profile and their gender and their age and the type of the lessons also the objectives of each lesson
- Selecting the appropriate EG for the pupils is abide by the learner's needs, preferences and learning styles, and their level. Henceforth, balancing between the different types of EG that fit all pupils is a priority that the teacher should be well aware of, because every pupil is a unique textile.
- When it serves my lesson objectives and takes in consideration students different capacities
- The best educational games are always enjoyable, I tried to play them myself and see if enjoy them or not, whatever level of expertise you have in the subject topic, a good game should still be enjoyable.

It is clear that there is no one-size-fits-all approach to selecting educational games, as the needs and preferences of each group of students may differ. However, the responses suggest that an effective approach involves balancing different types of educational games that can cater to a range of learning styles and abilities, while also ensuring that the games are engaging and enjoyable for students.

**Q.12. what specific thinking skills do you aim to enhance through the use of educational games?**

The answers focus on enhancing various thinking skills through the use of educational games. These skills include:

- Problem-solving and decision-making.
- Concentration, creative thinking.
- Memorization
- Boost their mental thinking and have them using their imagination in creative way.
- Problem solving.
- decision-making
- Guessing. Problem solving logical thinking and creativity
- Critical thinking, retention, division making.
- Memory skills, problem solving

The teachers highlight problem-solving and decision-making as key thinking skills that can be improved through the use of educational games. These games can provide students with the opportunity to practice these skills in a fun and engaging way, while also promoting the development of critical thinking and creativity.

The teachers also notes that educational games can be used to encourage imagination and boost mental thinking, they mentions also that games can help with memory skills and guessing, and can be used to foster logical thinking and creativity.

Overall, educational games can be a fun and engaging way to develop a wide range of thinking skills, from problem-solving and decision-making to creativity and critical thinking depending on the specific goals and objectives of the game.

**Q.13.What are your attitudes and towards game-based learning?**

Their answers were like that:

- Game-based learning can be a valuable addition to a teacher's toolkit, helping to enhance traditional teaching methods and provide new and engaging ways for students to learn.
- I think using educational games is a great idea. It shows that the teacher actually cares about how many his /her students understand what is being taught in class.
- For me, games can help learners develop problem-solving skills, increase their motivation to learn, and provide a safe environment to practice and apply new knowledge.
- In my opinion, games-based learning can help learners stay motivated and interested in learning, which can lead to better learning outcomes.
- Depend on my previous knowledge games can help pupils develop problem-solving, critical thinking, and decision-making skills, which are essential in many areas of life.
- It's an exquisite experience, It can be used to teach complex and abstract concepts in a more accessible and understandable way.
- I agree that using variation of games makes more acknowledge about whom my learner's are and what they need
- I use this tool and I highly recommend this effective learning tool for teachers who do not.
- It helps a lot especially in primary school. Games-based learning is a teaching approach that uses games to engage learners and enhance their understanding of specific concepts or skills.
- Real concern and friendliness, readiness to share the burden of learning, a natural sensitivity to student diversity, interest in equally offering valuable learning experiences, and eagerness to foster learners' creativity are the most frequently cited attitudes.

The teachers acknowledge that games can help develop essential skills such as problem-solving, critical thinking, and decision-making. They also believe that games-based learning can be used to teach complex and abstract concepts in a more accessible and understandable way. The teachers also believes that using a variety of games can help teachers understand who their learners are and what they need, making it an effective tool for primary school education.

The teachers' attitudes towards game-based learning seem to be positive, practical, and focused on improving the learning experience for students. They also show a willingness to share their experience and recommend this learning tool to other teachers who do not use it.

**Q.14 .What advice would you give to teachers interested in using educational games to enhance pupils' thinking?**

Here is some advice that given by teachers:

- •Select games that are age-appropriate and that your students will find engaging.
- •Know where and when to use it.
- •I wish u all the best before u start the game ,u must have the full Access and control over your students ,so they will not cross the rules and don't be too loose nor too strict because the role model teacher is the one who balance his feelings and controls his demeanor.
- Be a teacher who make his student curious about the next lessons and can't wait for it.
- Teachers should be well aware of the paramount importance of the use of EG as it gives equal chances for students to participate and they should value these game-based learning to boost their pupils' thinking more specifically, their critical thinking.
- Don't be slave to traditional way of teaching just use educational games you easily grab their attention
- Think about both daily tasks and long-term teaching and learning goals, _put the thinking skill of analyzing and evaluating into practice. _ examine your resources; predict what they will require, and choose how and when to gauge Students' development.

The responses to the interview question provide a range of advice on using educational games to enhance pupils' thinking. Some of the responses are general and do not provide specific guidance, while others offer more detailed advice. The responses emphasize the importance of selecting age-appropriate and engaging games, maintaining control over students, promoting critical thinking, and being open to non-traditional teaching methods. Additionally, some of the responses suggest that teachers should think carefully about their teaching goals and assess students' progress when using educational games.

## 2.7 Analysis of learners 'Questionnaire:

**Section one: Background information**

Question 1: Gender

Table 1: The Distribution of learners' gender

| Gender | Participants | Percentage |
|---|---|---|
| Female | 17 | 57% |
| Male | 13 | 43% |

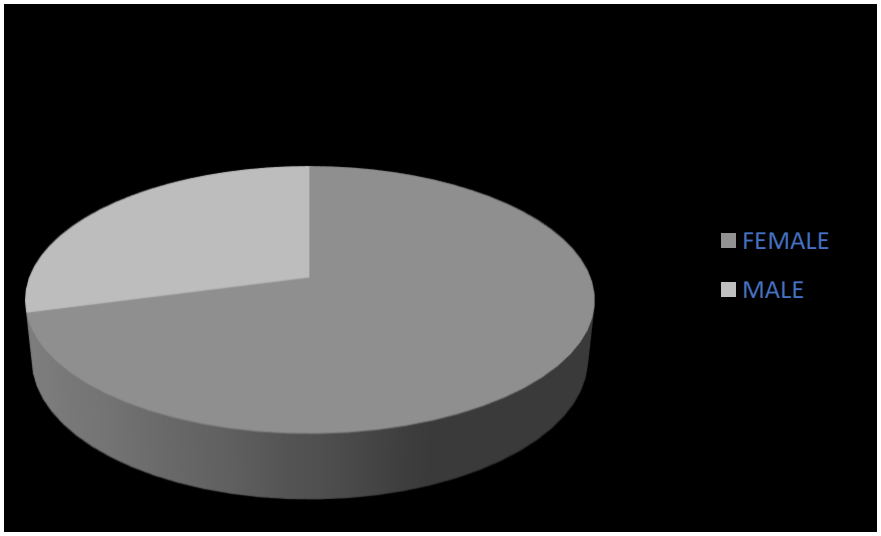


Figure 1: Learners' Gender

The table 01 and pie chart 01 above show that 17 students who replied to the questionnaire were females and they represent (57%), while there were 13 males (43%) from the total number of participants that is 30 participants.

Question 2: Age

Table 2: Learners' Age

| Age | Participants | Percentage |
|---|---|---|
| [13-14[ | 6 | 20% |
| [14-15[ | 11 | 37% |
| [15-16[ | 8 | 27% |
| [16-17] | 5 | 16% |
| | | |

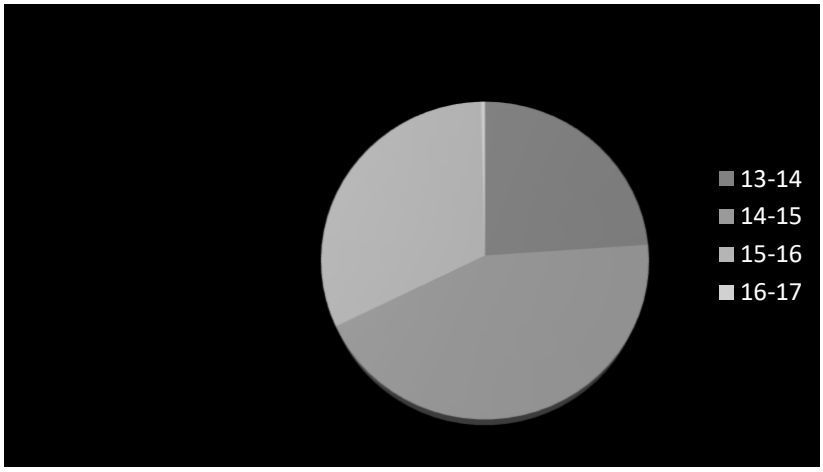


Figure 2: Learners' Age

The results of this question show 20 ٪of the participants are from the age of 13-14, whereas 37 ٪are from the ages of 14 – 15. Moreover 27% are from the age of 15-16, the last category are from 16-17 which represents 16% of the participants This shows that pupils are from different ages.

Question3: Level

Table 3: The Distribution of Learners' Level

| Level | Participants | Percentage |
|---|---|---|
| 3MS | 30 | 100% |

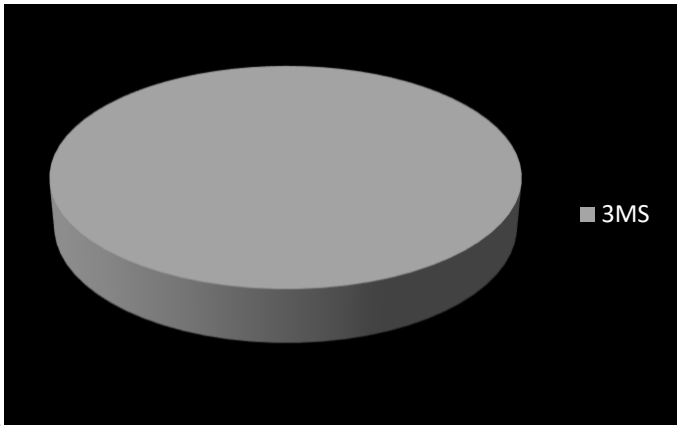


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Figure 3: Learners' Level

The case study is third year middle school students at SAA middle school, this questionnaire was handed to third year EFL pupils at SAA Middle school.

Section Two: the Learners' perception about Educational Games

**Question 1: An educational game is a game that concerns:**

A. educating learners in the class

B. helping learners to do well in the class

teaching something through the use of games

Table4: Students' attitudes towards the concerns of educational games

| Q | A | B | C |
|---|---|---|---|
| Participants | 9 | 7 | 14 |
| Percentage | 30% | 23% | 47% |

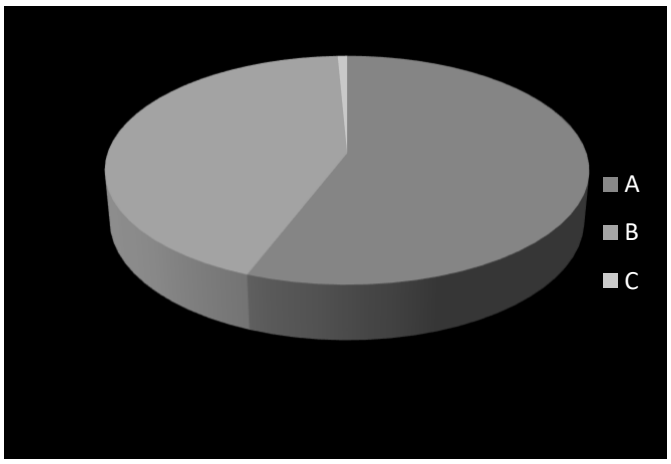

Figure 4: Students' attitudes towards the concerns of educational games

Nine (30%) students claim that an educational game is a game that concerns with educating learners in the class because educational games can be a valuable tool for educators to help students learn in an engaging and enjoyable way, while seven (23%) students declare that games concern helping the learners to do well in the class by making learning fun which help to increase motivation and engagement among students and this can lead to better performance and academic success. The last fourteen (47%) students state that games are meant to teach something through the use of them since educational games are designed to provide a fun and engaging way to learn, while also delivering educational content and helping learners to develop important skills.

**Question 2: Do you like educational games?**

Table 5: learners' attitudes towards educational games

| Options | Participants | Percentage |
|---|---|---|
| Yes | 25 | 83% |
| No | 5 | 17% |

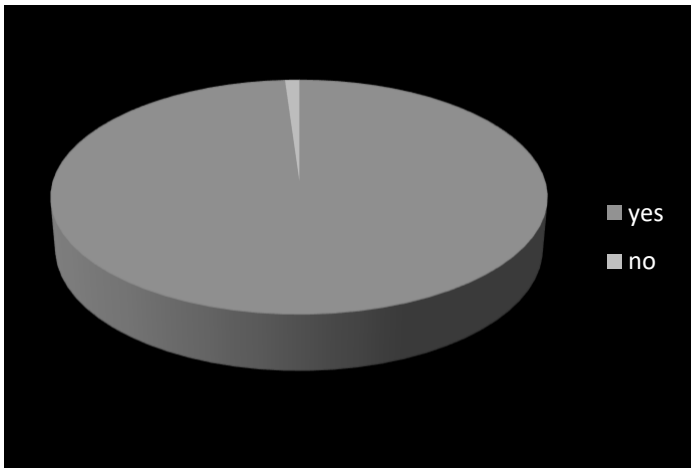


Figure 5: learners' attitudes towards educational games

Twenty five (83%) students say that they like educational Games because they can be more engaging than traditional learning methods such as lectures or textbooks, since games can be interactive and

involve the learner actively so the learners feel comfortable and motivated. Five (17%) students claim that they don't like educational Games maybe because they think that games are boring or not challenging enough, preferring other types of activities. It's important to remember that different learners have different learning styles and preferences, and what works for one learner may not work for another.

**Question 3: Are educational games a funny way to learn?**

Table 6: students' opinion toward games as a funny way to learn

| Options | Participants | Percentage |
|---|---|---|
| Yes | 23 | 77% |
| No | 7 | 23% |

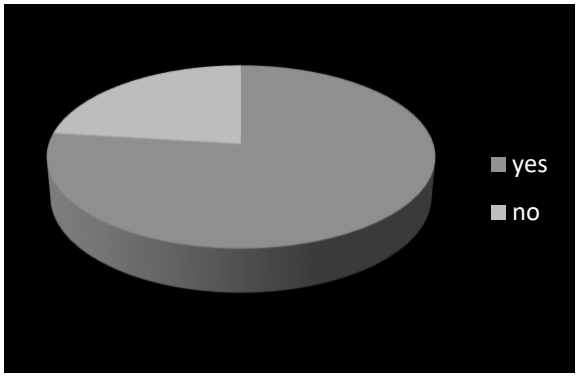


Figure 6: students' opinion toward games as a funny way to learn

Based on the given data, 23 (77%) out of 30 pupils said that educational games are a funny way to learn, while 7(23%) disagreed. This result suggests that a majority of students enjoy learning through games.

**Question 4: Are there any educational games to help you prepare for tests or exams?**

Table 7: Students' opinions about games' role in preparing for tests and exams

| Options | Participants | Percentage |
|---|---|---|
| Yes | 20 | 67% |
| No | 10 | 33% |

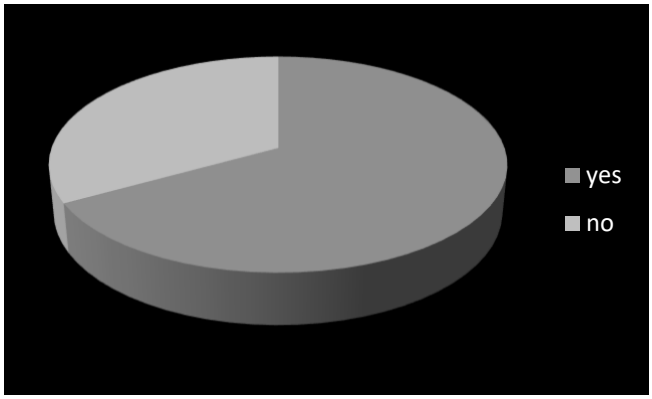


Figure 7: Students' opinions about games' role in preparing for tests and exams

Twenty (67%) students said yes, for them they use specific games to help them prepare for tests and exams by helping them better remember the material and gaining a deeper understanding of the concepts they are studying. Only ten (33%) students said no, according to them, they do not use any educational games to prepare for exam maybe because they find them boring and not effective or they prefer another method.

**Question 5: Can educational games be used to help you remember information?**

Table 8: Students' attitudes towards the effect of games in remembering information

| Options | Participants | Percentage |
|---|---|---|
| Yes | 22 | 73% |
| No | 8 | 27% |

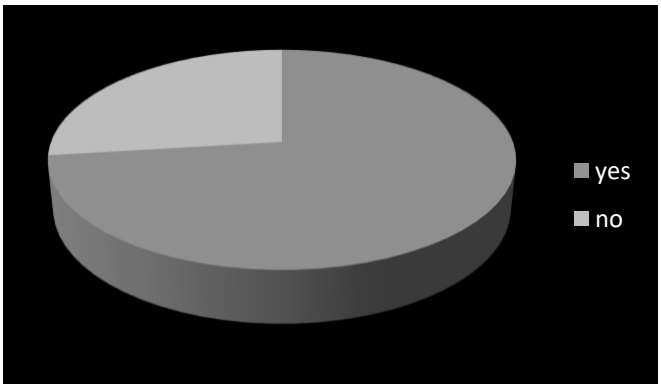


Figure 8: Students' attitudes towards the effect of games in remembering information

Based on the responses of 30 pupils, 22(73%) of them believe that educational games can be used to help remember information, while 8(27%) of them believe that educational games cannot be used to help in this process. Therefore, the majority (73%) of pupils believe that educational games can be effective

for memory retention, when playing educational games, students are actively engaged in the learning process and are often required to recall information in order to progress through the game. This can help to reinforce knowledge and improve memory retention.

**Question 6: Have you ever used educational games in school or at home?**

Table 9: Students' attitudes toward the use of games in school or at home

| Options | Participants | Percentage |
|---|---|---|
| Yes | 15 | 50% |
| No | 15 | 50% |

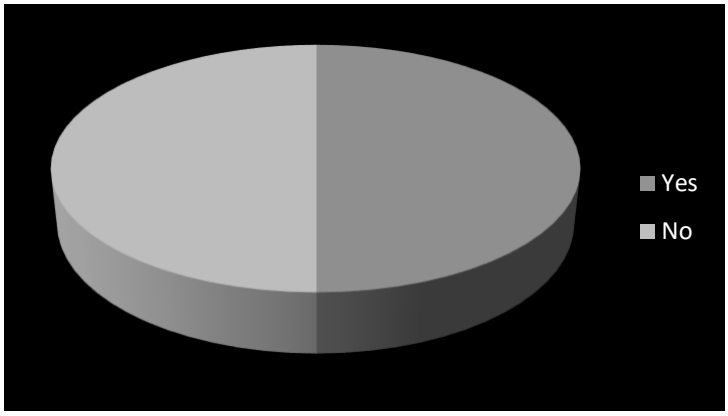


Figure 9: Students' attitudes toward the use of games in school or at home

The results of this question show 50 ٪of the participants have used educational games in school or at home, because they think that games can be used as an effective tool to achieve specific objects such as enhancing student's thinking and help them to remember new learned items or skills. Whereas the other 50 ٪have not used them maybe because games take too much time or they think that games do not help them a lot and they like to be taught by traditional techniques.

**Question 7: Do you think you can learn more from educational games than from traditional teaching methods?**

Table 10: Students' perception about the benefits of educational games in learning compared to traditional methods.

| Options | Participants | Percentage |
|---|---|---|
| Yes | 16 | 53% |
| No | 14 | 47% |

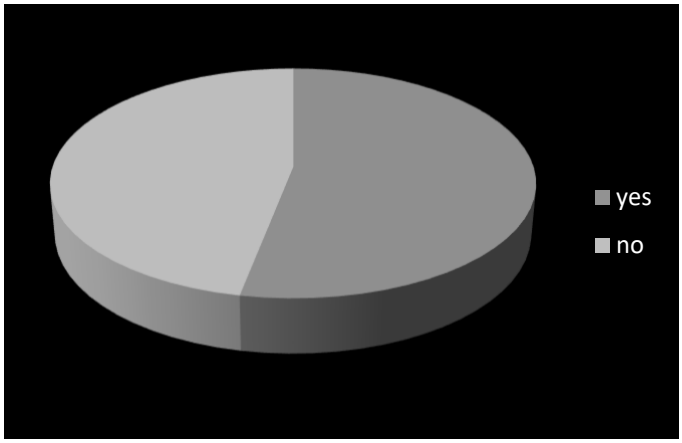


Figure 10: Students' perception about the benefits of educational games in learning compared to traditional methods.

Sixteen (53%) declared that they think they can learn more from educational games than from traditional teaching method because games allow them to acquire information and develop skills in new form and also give them a chance to work and create, they also motivate them in entertaining way unlike the traditional methods. While fourteen students (47%) stated that they learn more from traditional teaching methods. They may feel more comfortable with traditional techniques and find it easier to learn in this way. Also students may feel that they need to learn certain skills and content in a more traditional way to be successful in their future career.

The results show that educational games can be a helpful tool for learning and may be more effective than traditional teaching methods in some cases. However, they should be used in conjunction with other teaching methods and should be carefully selected and integrated into the curriculum to ensure maximum effectiveness.

**Question 8: Do educational games help you to think?**

Table 11: Learners' attitudes towards the effectiveness of games in promoting thinking

| Options | Participants | Percentage |
|---|---|---|
| Yes | 25 | 83% |
| No | 5 | 17% |

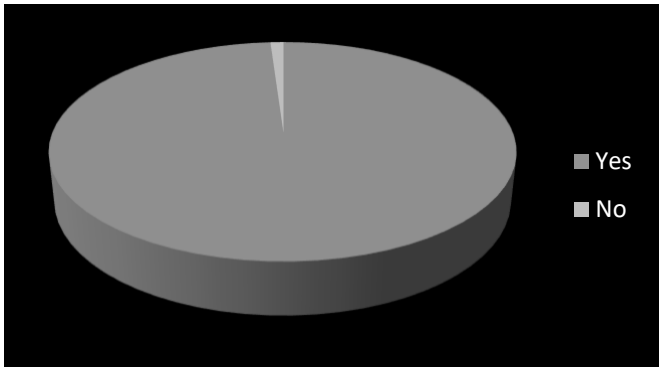


Figure 11: Learners' attitudes towards the effectiveness of games in promoting thinking

Twenty five (83%) students state that games help them to think because many educational games are designed to present challenges or problems that require players to think and come up with solutions and often require them to make decisions in limited time which can help learners develop their cognitive abilities. By contrast only five (17%) students declare that games don't help them to think maybe because the games are not challenging enough or they like to be taught by traditional techniques.

**Question 9: Do your teacher motivate you to learn through games?**

Table 12: learners' attitude about teachers' motivation to learn through educational games

| Options | Participants | Percentage |
|---|---|---|
| Yes | 21 | 70% |
| No | 9 | 30% |

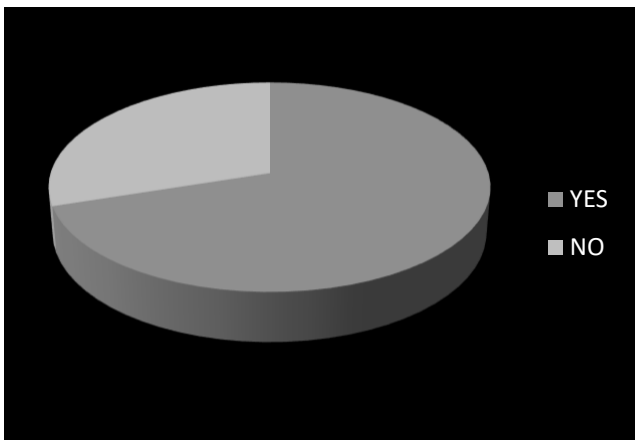


Figure 12: learners' attitude about teachers' motivation to learn through educational games

Twenty one (70%) students state that their teachers motivate them to learn through games. The teachers believe that educational games are often designed to be fun and interactive, which can help

engage students and keep them interested during a lesson. When students are engaged, they are more likely to pay attention and remember what they have learned. Nine (30%) students claim that their teachers don't motivate them to use games. Teachers may choose not to use them due to a variety of factors, it could be because of the lack of time or because games may not be effective for all students or for all learning objectives.

## Section Three: Implementation of Educational games

**Question 1: When learning through educational games I face many difficulties**

Table 13: the possibility of facing difficulties when learning through games

| Options | Participants | Percentage |
|---|---|---|
| Agree | 13 | 43% |
| Disagree | 17 | 57% |

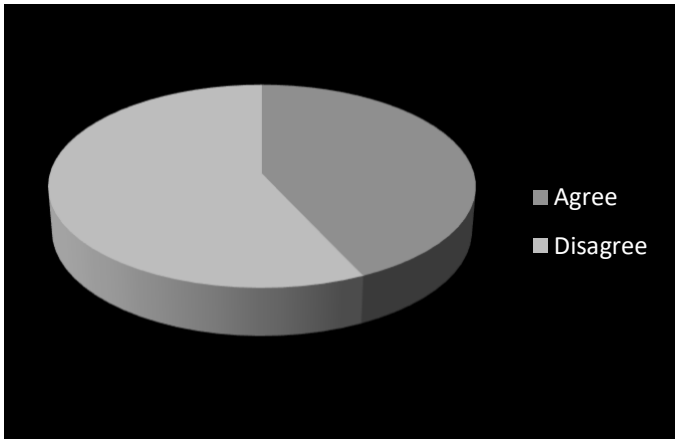


Figure 13: the possibility of facing difficulties when learning through games

The results show that 43% of participants (13) agreed that they face many difficulties when learning through educational games because learners may not understand how to use the game and face a lack of guidance by the teacher. However, 17 participants disagreed (57%) with this claim. The results indicate that while educational games can provide a fun and engaging way for learners to acquire new knowledge and skills, it is important to acknowledge that there may still be some difficulties that learners may encounter.

**Question 2: Educational games motivate me a lot in the classroom**

Table 14: students' opinion toward games as a motivating tool

| Options | Participants | Percentage |
|---|---|---|
| Agree | 18 | 60% |
| Disagree | 12 | 40% |

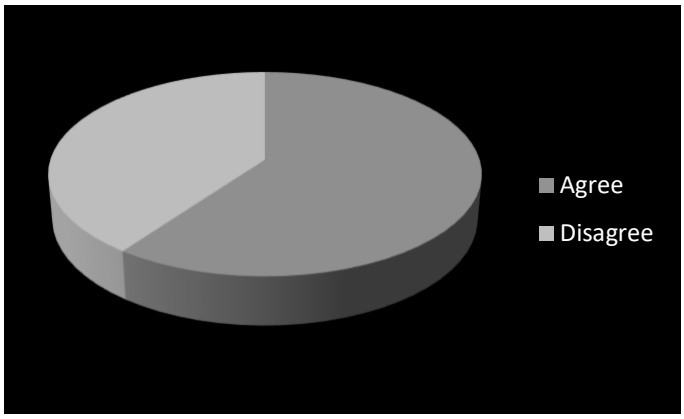


Figure 14: students' opinion toward games as a motivating tool

As far as the results obtained, eighteen (60%) students agreed that educational games motivate them a lot in the classroom, while the rest of students (40%) disagreed. Educational games, in particular, can be used to motivate students by making the learning process more interactive, enjoyable, and stimulating. On the other hand, it is possible that some students may not find them as motivating as others because they may simply prefer different learning styles and may not find games to be an effective way to learn

**Question 3s: Educational games are waste of time**

Table 15: Students' attitude toward using games just to waste time

| Options | Participants | Percentage |
|---|---|---|
| Agree | 9 | 30% |
| Disagree | 21 | 70% |

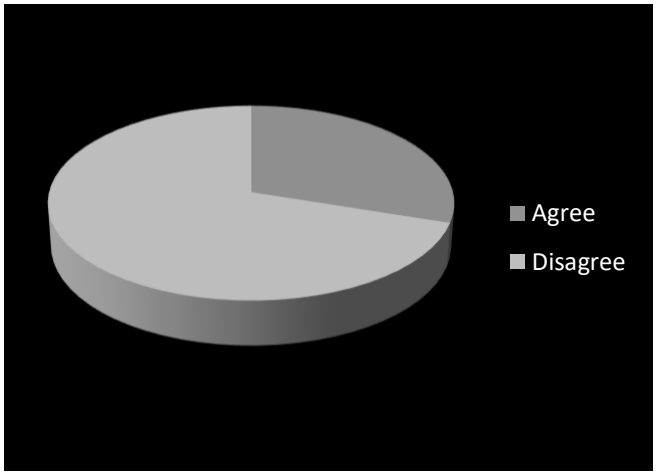


Figure 15: Students' attitude toward using games just to waste time

It is clear from the table above that the majority of students (70%) disagreed on considering educational games as a waste of time, while (30%) students agreed. Educational games are a waste of time or not can depend on a number of factors, including the quality of the game, the relevance to the learning objectives, and the most important factor is the needs and preferences of the individual learner

**Question 4: Educational games are meant for fun**

Table 16: Learners' opinions about games as an entertaining technique

| Options | Participants | Percentage |
|---|---|---|
| Agree | 13 | 43% |
| Disagree | 17 | 57% |

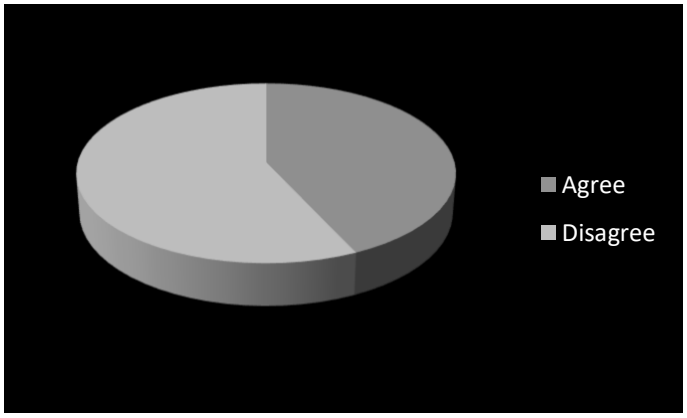


Figure 16: Learners' opinions about games as an entertaining technique

The statistics above show that 43 % of students (13) agreed with this claim: "educational games are meant for fun" because some games may be poorly designed or lack clear learning objectives, which can make them less effective as tools for learning that is why learners consider them as a fun tool more than

an educational one. However, seventeen participants disagreed (57 %) and this is actually their primary purpose.

**Question 5: Educational games give me a chance to learn and practice**

Table 17: Students' attitudes towards the effects of Educational games in offering learning and practice opportunities

| Options | Participants | Percentage |
|---|---|---|
| Agree | 25 | 83% |
| Disagree | 5 | 17% |

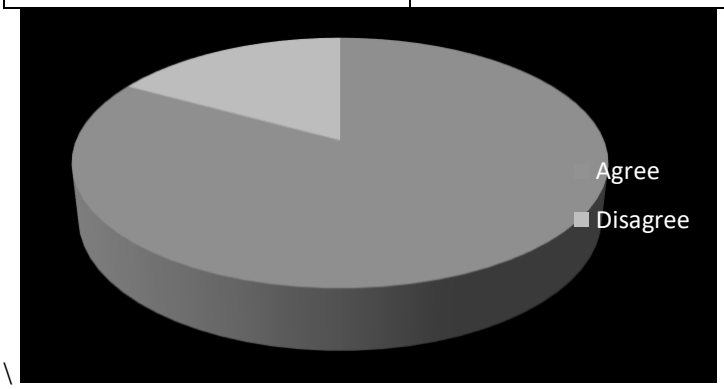


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Figure 17: Students' attitudes towards the effects of Educational games in offering learning and practice opportunities

The table illustrates that the majority of respondents (25 students) agreed that educational games give them a chance to learn and practice (83 %). While only five students disagreed on this claim (17%). The results confirm that educational games can be an effective tool for students to learn and practice new concepts. Students can practice a variety of skills which can help students develop different practical skills.

**Question 6: Educational games help me develop problem-solving skills**

Table 18: Games' effect on developing problem solving skills

| Options | Participants | Percentage |
|---|---|---|
| Agree | 24 | 80% |
| Disagree | 6 | 20% |

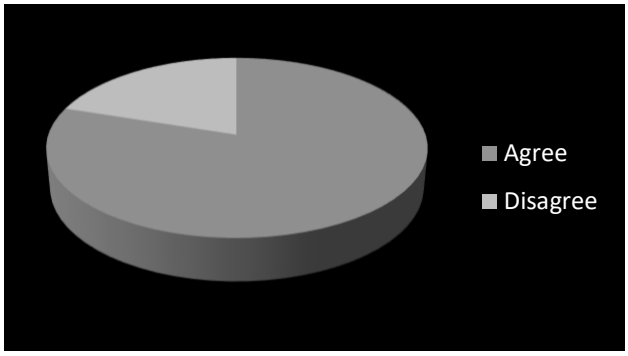


Figure 18: Games' effect on developing problem solving skills

This question was devoted to know if educational games help learners to develop problem solving skills or not. The table indicates that 80 % of sample (24) agreed with this claim. It is clear that EFL pupils recognize that educational games can be an effective way to develop problem-solving skills. Many educational games are designed to present students with challenges that require them to think critically and solve problems. On the other hand, only 20% disagreed on considering games as an effective method to develop problem solving skills, maybe because if the game is poorly designed, it may not present enough challenging problems.

## 2.8. Results Discussion:

Robinson states in her 1987 practicum report: Teaching children to become effective thinkers is increasingly recognized as an immediate goal of education.... If students are to function successfully in a highly technical society, then they must be equipped with lifelong learning and thinking skills necessary to acquire and process information in an ever-changing world (p. 16). She highlights the importance of teaching children to become effective thinkers, students need to be equipped with the necessary skills to

learn and think critically. This includes not only acquiring and processing information but also being able to analyze, evaluate, and apply it in different contexts. By teaching children to be effective thinkers, we are helping them to become active learners who can adapt to new situations and solve complex problems. Likewise Robinson also notes that:

While the importance of cognitive development has become widespread, students' performance on measures of higher-order thinking ability has displayed a critical need for students to develop the skills and attitudes of effective thinking (p. 13). Moreover, Thinking is a fundamental skill that helps students become independent and analytical thinkers. The development of thinking skills is crucial for students, especially third year middle school pupils, who face challenges in expressing themselves in a foreign language like English.

Developing thinking skills among EFL (English as a Foreign Language) middle school pupils is an essential component of their language learning process. For this reason Teachers must adopt effective and engaging teaching methods that promote active thinking among pupils. By creating an environment that fosters active thinking, pupils will be more engaged, motivated, and successful in their academic pursuits and beyond.

Presseisen makes this point even more forcefully, asserting that: The most basic premise in the current thinking skills movement is the notion that students CAN learn to think better if schools concentrate on teaching them HOW to do so (p. 17). It means that by focusing on teaching students the skills and strategies of effective thinking, educators can help them become more proficient in analyzing information, evaluating arguments, and solving problems. And by providing students with opportunities to practice and develop their thinking skills, educators can help them become more successful learners who are better prepared for the challenges of the future.

The purpose of this research is to investigate the impact of educational games on learners' thinking skills and examine their attitudes towards the use of games in the educational context. The study aims to

collect data that can demonstrate the efficacy of educational games in enhancing thinking skills, such as problem-solving, critical thinking, and decision-making.

In light of this, the learners' questionnaire included several questions in its first section that sought to gather information on the learner's perception about educational games. Participants were asked if they incorporated games into their learning process and gain benefits from using educational games or not, and? Whether their teachers promoted the use of games as a learning tool. In The following section, as the questionnaire attempted to determine if the learners face any difficulties when they learn through educational games. Furthermore, it tried to elicit learners' perspectives on the implementation of educational games and how they can improve thinking and problem solving skills.

The first part of the questionnaire revealed that most of participants declared that an educational game is a game designed to teach something through game play. Certainly, all learners indicated that they like educational games and find if as a funny way to learn.

Additionally, the questionnaire aimed to determine whether educational games can aid learners in preparing for tests and exams and enhancing their retention of information. The majority of respondents expressed positive views because educational games increase learners' motivation to study and prepare for tests and exams. This means that many educational games are designed to help learners remember information more effectively, which can be particularly helpful for preparing for exams.

Besides, half of the pupils indicated that they have not ever used educational games in school or at home, while on the other hand the rest of them say yes. This fact may lead us to say that some learners may not be aware of the benefits of educational games and how they can help in learning. They may not have been introduced to such games by their teachers or parents. Further to this, the questionnaire also aimed to determine whether learners have a preference for educational games over traditional learning methods. Based on the respondents' answers, it was revealed that learners are more inclined to use educational games than traditional teaching methods due to the importance of educational games in making the learning process more fun, engaging, and interesting.

In the next question, all the respondents' learners declared that games help them to think. In fact, educational games can provide a unique and engaging way for learners to develop a range of thinking skills such as: decision making, problem solving, retaining information, and making mistakes. The final question aimed to determine whether teachers encourage learners to use games as a learning tool. As expected, the majority of pupils confirmed that their teachers view educational games as a valuable tool for supporting learners' learning and development because games can be designed to meet the diverse needs of learners, allowing them to learn at their own pace and level.

The questions of this part attempt to gather information about the experiences and opinions of individuals regarding the implementation of educational games as a learning tool. Specifically, they focus on the difficulties faced, the motivation gained, the perceived value and purpose of educational games, and the benefits in terms of learning and skill development.

Within the first question in this part we tried to find whether pupils encounter any challenges when they use educational games .The majority declared that they face many difficulties. These difficulties can come in various forms, such as technical issues with the game, difficulty understanding the game mechanics or rules, or struggling to apply the knowledge I've gained in the game to real-world situations. Additionally, some games may not be designed with my learning style or preferences in mind, leading to frustration and a lack of engagement.

Additionally the bulk of pupils believed that educational games can motivate them and give them a chance to learn and practice. Educational games are often designed to be interactive and engaging, which can make them more appealing and motivating for students than traditional forms of instruction. When students are motivated and interested in a topic, they are more likely to be actively engaged in the learning process and to remember what they have learned.

Also, educational games often provide students with opportunities to practice skills and apply knowledge in a safe and supportive environment. This can help to build confidence and reduce anxiety around learning, as students can experiment and make mistakes without fear of negative consequences.

In the following questions all the pupils indicated that most of time games are just for fun more than an educational tool .In fact, research has shown that educational games have significant benefits for learning, thinking and can enhance academic performance in various subjects.

For instance, educational games can improve cognitive skills such as problem-solving, decision-making, thinking, and creativity. They can also enhance knowledge retention, as they provide a fun and engaging way to learn new concepts and reinforce existing ones. Besides , more than half of pupils agree that educational games may help to develop their problem-solving skills by presenting students with challenges and obstacles to overcome within a game, they are able to apply critical thinking and analytical skills to find solutions.

Furthermore, educational games can also provide instant feedback and opportunities for students to learn from their mistakes, which can help to reinforce their problem-solving skills and build confidence in their abilities.

To enhance the results of this study and to ensure clear comprehension and prevent any confusion, an interview was carried out with ten teachers from middle schools. The interview is designed to ask fourteen questions. To begin with, data was collected by asking a few questions about the definition of educational games, whether those games have any benefits as a teaching method, which type they use and how they incorporate them in the classroom, and whether educational games can enhance learners' thinking and try to mention specific types that help in this process.

At the midpoint of the interview the questions asked were mainly aimed at discovering more about if there are any drawbacks to use educational games and what motivate them to use this technique, also the questions aimed at knowing any successful outcomes from using educational games. It even sought to understand how teachers balance the use of games with other teaching methods, and how they choose the appropriate game for students.

Moreover, the teachers were questioned about the specific thinking skills they aim to enhance through educational games and their attitude toward using games. At the end of the interview, the questions posed

to the teachers were asked them to give an advice for teachers who are interested in using educational games to enhance pupils' thinking.

The interviewees all shared the same view that there are a lot of educational games that can be used to teach different skills and subjects such as puzzle, quizzes, guessing game, and charades, those games create a fun and engaging learning which make pupils more interested and motivated. They boost students' thinking skills and bring out their creativity.

In addition, almost all participants describe various methods for incorporating educational games effectively into the learning process whether based on their specific objectives or by using them to warm up. They declare that some games need a whole session while others may require only a part of it.

Furthermore, the focus of the interview was on exploring the extent to which educational games can boost learners' thinking capacities. All of the interviewees stated that educational games can enhance students' thinking skills by requiring them to make decisions and solve problems in a context related to the lesson. In this way, students are challenged to think and apply their knowledge in a practical setting.

Additionally, every single interviewee confirmed that educational games have many challenges when they used in the classroom. These challenges include issues with noisy classrooms, unbalanced schedules, space limitations, and misbehaving students. The teachers interviewed identified time management as one of the most significant challenges when using educational games. They noted that implementing educational games could be time-consuming and might detract from the limited classroom time available for other learning activities.

Equally important, the respondents stated that various types of educational games are being implemented by them to enhance the thinking skills of their students. These games include digital games like Minecraft Edu, traditional games like bingo and puzzles, quizzes, and memory games. The majority of the interviewees conducted reveal that the primary driving force behind the use of educational games in the classroom is to engage and motivate students in the learning process and to create a more enjoyable and interesting learning experience that encourages active participation and interaction among students.

Besides, the majority of the interviewees expressed that using educational games in the classroom has resulted in a range of successful outcomes. These include improved collaboration and communication skills, enhanced thinking. They also noted that educational games can foster active learning, learner autonomy, and encourage introverted students to participate more comfortably.

Moreover, most of the interviewees suggest that using educational games can be an effective teaching strategy, but it requires intentionality and consideration of students' needs and preferences. Balancing different types of educational games that cater to a range of learning styles and abilities can be important, as well as ensuring that the games align with learning objectives and are engaging and enjoyable for students.

Apart from that, almost all of the individuals who were interviewed noted that educational games offer an effective way to enhance problem-solving and decision-making abilities among students. By engaging in such games, students can improve these key thinking skills in an entertaining and stimulating manner.

At the end, the attitudes towards game-based learning are generally positive among the teachers. They see it as a valuable addition to traditional teaching methods and a way to enhance students' understanding of specific concepts or skills. Teachers also advise not to be too strict or too loose and to balance their demeanor. Teachers should value game-based learning and use it to boost their pupils' thinking, especially critical thinking.

Actually, Teachers maintain that incorporating educational games as a learning technique for young learners resulted in higher levels of engagement and boosted their cognitive skills. They all agree that games are both educational and entertaining. According to the teachers, educational games are valuable and more successful and yield better results than traditional methods. As a result, the interview results supported our research questions and hypothesis, further validating the outcomes of the

**Conclusion:**

In order to answer the main research questions: which types of games are most beneficial for promoting thinking skills and what elements of those games are responsible for their effectiveness?, What

are the attitudes and perceptions of pupils and teachers towards game-based learning?, What barriers or challenges exist in implementing game-based learning in the classroom?, How does game-based learning impact pupils' motivation, engagement, and enjoyment of learning?, and How can teachers integrate games into their teaching practice to improve pupils' thinking?, the primary focus of this chapter was to analyze and discuss the research data gathered from the questionnaire and the interview.

Following the analysis of the data, it became evident that a significant majority of the participants in this study share similar perspectives regarding educational games as a teaching technique, highlighting their value for enhancing pupils' thinking. Moreover, these findings provide evidence for the advantages of educational games for both teachers and learners, indicating their positive contribution to the improvment of EFL pupils' thinking abilities. As a result, the hypotheses of the current research have been carefully tested and shown to be highly valid.

## Recommendations

When teachers employ a diverse range of methods to enhance learning outcomes, language teaching becomes an interesting and fulfilling experience. The integration of games as a component of the instructional process not only adds an enjoyable aspect but also enables learners to acquire knowledge in an interactive and entertaining way. Yet, Teachers should be aware of specific limitations when incorporating educational games into their teaching practices:

Teachers should select educational games that correspond to the specific thinking abilities they intend to develop in their students. They have to look for games that involve critical thinking, problem-solving, decision-making, logical reasoning, and creativity.

Teachers must incorporate educational games strategically into their lesson plans to supplement and reinforce the concepts being taught. Use games as a practical and interactive way for pupils to apply their thinking skills in a context that is both meaningful and engaging.

After using educational games, and facilitating reflective discussions with pupils, teachers should encourage them to reflect on the thinking strategies they employed, the challenges they faced, and the

lessons they learned. This promotes metacognition and helps students become more aware of their thinking processes.

Try to enhance the complexity and difficulty of educational games to foster the development of pupils' thinking skills. Begin by introducing simpler games that lay the foundation for critical thinking, and progressively introduce more challenging tasks that require higher-order thinking abilities. This scaffolding approach will support pupils in gradually building their cognitive skills while maintaining engagement and motivation.

Teachers need to foster connections between the skills acquired through educational games and their real-life applications. They should facilitate discussions with pupils about how the thinking skills they practice in games can be transferred to everyday situations, problem-solving scenarios, and future academic pursuits. By emphasizing the practical relevance of these skills, pupils will be motivated to apply them outside the gaming context, promoting a deeper understanding and long-term retention.

Provide comprehensive guidance and support to pupils as they engage with educational games. Offer timely and constructive feedback on their performance, highlighting both their strengths and areas for improvement. Encourage pupils to reflect on their progress and identify areas where they can further enhance their thinking skills. By fostering a growth mind-set and self-reflection, pupils will develop a sense of agency and become more proactive in their learning journey.

Ensure a diverse range of learning experiences that include hands-on projects, discussions, reading, and writing tasks to foster comprehensive development. The teachers have to play the role of controllers, guides, and facilitators. Once the activity starts, the teacher does not have to interfere, providing students with the liberty to carry out the game. Learners should not face punishment for mistakes, so they can then fully benefit from playing language games.

# General Conclusion

In today's globalized world, the English language plays an essential role, making it imperative for individuals to acquire proficiency in order to effectively communicate through speaking or writing. Mastery of English involves more than just memorizing vocabulary; it requires the development of thinking skills. Whether it is conveying thoughts and ideas or comprehending others' expressions, learners need to foster their thinking abilities to utilize the language proficiently. Nevertheless, nurturing these thinking skills can pose a significant challenge for English as Foreign Language (EFL) learners, particularly beginners, due to various factors previously mentioned.

When it comes to the process of thinking, researchers and cognitive scientists have delved into various strategies to enhance and optimize this fundamental mental activity. The acquisition of thinking skills is crucial for effective problem-solving, decision-making, creativity, and other skills. Numerous studies have highlighted the significance of creating an environment that fosters thinking and stimulates cognitive development. Such an atmosphere can greatly contribute to the development of one's thinking abilities. Additionally, employing techniques that evoke curiosity, challenge, and intellectual playfulness, such as problem-solving exercises, brainstorming sessions, and interactive discussions, has been shown to enhance cognitive flexibility and encourage innovative thinking. Creating a funny and relaxing learning environment for pupils can be achieved through the incorporation of educational games that contribute positively to learners' thinking enhancement.

The primary objective of this study was to explore and provide insights into the effectiveness of educational games on learners' thinking abilities. The participants in this research were third-year students attending "Salhi Abdel Aziz" middle school. By focusing on thinking skills, the study aimed to examine how educational games can enhance cognitive development among the students. The basis for selecting this sample was the concept that pupils, regardless of age, often encounter challenges when it comes to thinking and developing their cognitive abilities. Specifically, we focused on the cognitive development of middle school students, recognizing that this stage of their educational journey is crucial for improving their thinking skills. In order to achieve this, we formulated the hypothesis that by

integrating educational games into their teaching practices, teachers can foster positive development in the students 'thinking abilities.

Furthermore, we posited that the incorporation of diverse thinking games can offer EFL learners a range of opportunities to acquire and practice various thinking strategies. Lastly, we predicted that these educational games could be modified to meet the needs of different cognitive and thinking processing, including analytical thinking, creative thinking, logical reasoning, and decision-making. In certain games, all thinking skills can be integrated together, providing learners with comprehensive and multifaceted thinking experiences.

Two chapters were drafted to facilitate the research process. The initial chapter focused on theoretical aspects, with the first part delving into several significant themes such as educational games, their types, the value of using games as teaching tool and their limitations. The second part of this chapter shed light on thinking, its definitions, its characteristics, its types, Bloom's Taxonomy and how educational games affect thinking. Chapter two focused on the practical part, involving a detailed examination, analysis, and discussion of the data obtained through the research collection tools employed in this research. A questionnaire was administered to thirty pupils, and ten English middle school teachers were interviewed as part of the study. Recommendations and suggestions were provided by the end of this chapter to enhance the teaching methods employed by teachers in fostering learners' thinking skills.

In the end, the investigation has shown that English Language teachers employ diverse games in writing, reading, listening, or speaking sessions to foster thinking abilities. Moreover, students derive pleasure and active involvement from educational games as part of their learning process. The gathered data provides strong evidence to support the effectiveness of educational games in English classes, thus affirming the initial hypotheses. Certainly, the results demonstrate that educational games are valuable and effective instruments for enhancing students' thinking capabilities.

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# Appendices

## Appendix A

## Teachers' Interview

Would you please answer the questions below? Your answers are very valuable for a dissertation research work

1. What are the benefits of using games as a teaching aid in the classroom?
2. What types of games work well for teaching different subjects or concepts?
3. What is your definition of an educational game?
4. How can you incorporate educational games into your teaching practices?
5. How can educational games enhance pupils' thinking?
6. Can you give an example of an educational game that has been successful in enhancing pupils' thinking?
7. Are there any potential challenges or drawbacks to using educational games in the classroom?
8. What motivated you to start using educational games in your classroom?
9. What are some examples of successful outcomes you have seen from using educational games in your classroom?

**10.** How do you balance the use of educational games with other teaching strategies and methods?

**11.** How do you select appropriate educational games for your students?

**12.** What specific thinking skills do you aim to enhance through the use of educational games?

**13.** What are some examples of successful outcomes you have seen from using educational games in your classroom?

**14.** What are your attitudes and towards game-based learning?

**15.** What advice would you give to teachers interested in using educational games to enhance pupils' thinking?

## Appendix B

## Surdents' Questionnaire

Dear Pupils

You are kindly invited to participate in this survey. The purpose of this questionnaire is to capture feedback about benefits of using educational games in class. Please, take some moments to reflect on each question. Your answers will remain confidential and they will be only used in finding ways to improve the academic experience of our students in the future.

**Section One: Students' self-identification**

Your gender is Male ☐ female ☐

Your Age is ☐ Level...

**Section Two: The Learner's Perception about Educational Games**

1. An educational game is a game that concerns..... (Tick the right answer.)

A. educating learners in the class ☐

B. helping the best learners to do well in the class ☐

C. teaching something through the use of games ☐

2. Do you like educational games?

Yes ☐ No ☐

3. Are educational games a funny way to learn?

Yes ☐ No ☐

4. Are there any educational games to help you prepare for tests or exams?

Yes ☐ No ☐

5. Can educational games be used to help you remember information?

Yes ☐ No ☐

6. Have you ever used educational games in school or at home?

Yes ☐ No ☐

7. Do you think you can learn more from educational games than from traditional teaching methods?

Yes ☐ No ☐

8. Do educational games help you to think?

Yes ☐ No ☐

9. Do your teacher motivate you to learn through games?

Yes ☐ No ☐

**Section Three: Implementation of Educational games**

10. When learning through educational games I face many difficulties

Agree ☐ Disagree ☐

11. Educational games motivate me a lot in the classroom

Agree ☐ Disagree ☐

Educational games are waste of time

Agree ☐ Disagree ☐

Educational games are meant for fun

Agree ☐ Disagree ☐

14. Educational games give me a chance to learn and practice

Agree ☐ Disagree ☐

15. Educational games help me develop problem-solving skills

Agree ☐ Disagree ☐

Thanks for your cooperation

## Abstract in Arabic:


**الملخص**

يعتبر تطوير مهارات التفكير جانبا أساسيا وصعبا في تعلم اللغة الأجنبية، حيث يحتاج المتعلمون غالبا إلى فهم المفاهيم الأساسية يجب على مدرسي اللغة الإنجليزية استخدام استراتيجيات فعالة لتعزيز فضول المتعلمين ومشاركتهم في عمليات التفكير. ومن ثم ، يهدف البحث الحالي إلى استكشاف كيفية دمج معلمي اللغة الإنجليزية الجزائريين للألعاب التعليمية في فصولهم لتعزيز قدرات التفكير لدى المتعلمين. شملت الدراسة ثلاثين طالبا في السنة الثالثة من متوسطة صالحي عبد العزيز، وعشرة مدرسين للغة الإنجليزية من متوسطات مختلفة. يستخدم في هذه الدراسة نهج الأساليب المختلطة لجمع المعلومات المطلوبة. وأجري استبيان على المتعلمين، في حين شارك المعلمون في مقابلات منظمة لتقييم مواقفهم تجاه دمج الألعاب التعليمية في عملية التعليم والتعلم. كشفت النتائج أن المتعلمون لديهم تصور إيجابي عن الألعاب التعليمية لأنها تدعم قدرتهم على التفكير بسهولة وتعزيز عملية التفكير لديهم. علاوة على ذلك ، أشارت النتائج إلى أن المعلمين يستخدمون هذه الطريقة لأنهم يدركون القيمة التعليمية للألعاب، وهم يعتقدون أن الألعاب توفر فرصة ثمينة للمتعلمين لممارسة ومراجعة دروس اللغة ، مما يؤدي إلى تطوير مهارات التفكير لديهم.