

People's Democratic Republic of Algeria

Ministry of Higher Education and Scientific Research

University of Ghardaia



Faculty of Letters and Languages

Department of English Language

**Technology-Enhanced Language Learning in EFL Contexts:
Evidence from AI-Based Instruction at the Licence Level at the
University of Ghardaia**

Dissertation submitted to University of Ghardaia for obtaining the Master's
degree in Didactics of Foreign Languages

Submitted by:

MEZZI Radja

ABDENNBI Safaa

Supervised by:

Dr. BOUGUELMOUNA Ahlam

Board of Examiners:

President: Dr. Mehassouel

Examiner: Dr. Bessadat

Supervisor: Dr. Bouguelmouna

Academic year: 2025/2026

Declaration of Originality (Declaration of Honor)

We hereby declare that this dissertation is entirely the result of our own investigation and that due reference and acknowledgment are made, whenever necessary, to the work of other researchers.

Date:

Signature:

Dedication

In the Name of Allah, the Most Gracious, the Most Merciful. All praise is due to Allah alone, the Source of all mercy, wisdom, and patience.

***To my beloved grandmother,** may God have mercy on her, always present in my heart, who was a symbol of tenderness, love and sincere prayers.*

***To my dear father,** the love of his only daughter. I am so proud to be your daughter, you are my rock and my hope in this life. Thank you for always being my inspiration, my strength, and my unwavering support.*

***To my beloved mother,** no words can truly express the depth of my gratitude and love for you. My beautiful radiant blessing, thank you for your love, patience and prayers, which accompany me every step of the way.*

***To my three dear brothers,** the source of my positive energy and happiness, thank you for your constant support, love and encouragement, and for always making me feel like your little spoiled sister.*

***To my dearest soul sisters,** and the blossoming flowers in the garden of my life, thank you for your love, your closeness and your constant support, you have always been a source of comfort to me.*

***To Safaa,** my colleague on this dissertation, thank you for working with me on this journey, and for your efforts and constant support, working with you has been a wonderful and rewarding experience.*

To all the members of MEZZI and BEN MESSAOUD family.

***To my classmates and dear friends,** thank you for your support and for being by my side throughout this journey, and for walking beside me through both challenges and achievements.*

***To my teachers,** past and present, thank you for all the knowledge, guidance and advice you have given me, it has had a significant impact on my academic career.*

***To myself,** the little girl inside me, I'm proud of you, who endured this journey with patience, determination and hard work, and persevered through the challenges until she reached this accomplishment.*

This research is for you.

MEZZI Radja

Dedication

In the name of God, the Most Gracious, the Most Merciful. First and foremost, I thank and praise God for the strength, patience, and success He granted me to complete this work. Without His help and guidance, none of this would have been possible.

***To my mother,** to my guiding light in the darkness of my journey, the warm-hearted one, by whose grace and prayers I have reached this day. Thank you for every moment of love, generosity, and care you have given me. Your support has been my strength in the most difficult times, and your faith in me has given me power when I needed it most. I will forever be grateful for everything you have done.*

***To my father,** the man who instilled ambition and self-confidence in my heart, who taught me the meaning of patience and perseverance, and who has been my role model every step of the way, thank you for your constant encouragement and sacrifices. Your presence and unwavering support have had an impact beyond words.*

***To my brothers,** Abd el basset, wherever you are, my companions on this journey, Abdul Fattah, and Abderrazzak, thank you for standing by me and supporting me in everything. Thank you for providing me with everything I wished for, and for your love and support, which always lifted my spirits and strengthened my resolve.*

***To my dear sisters,** Fatima Al-Zahra and Marwa, this achievement is for you, to thank you for your love and constant presence that fills my heart with joy and peace. Your words, patience, and encouragement have helped me more than you can imagine.*

***To my beloved little Loujain,** who has filled my days with joy and tenderness, I dedicate my heart and prayers to you, hoping that you will grow up happy and strong, and that your life will be filled with success and joy in every step you take.*

***To Radja,** my colleague in this dissertation, thank you for sharing this journey with me. I wouldn't have been able to accomplish it without you. Your efforts, ideas, and support made the path easier and smoother for us.*

***To all my friends,** on my academic journey, thank you for your friendship, constant encouragement, and unwavering support throughout this endeavor.*

***Finally,** to everyone who believed in me, thank you. I will never forget your love and support, which lifted my spirits. Your encouragement and faith in me propelled me forward.*

***To myself,** who turned fatigue into an achievement and patience into success, I proudly dedicate this work to you.*

ABDENBI Safaa

Acknowledgments

First and foremost, I praise Allah, the Almighty, and the Most Merciful, for granting me the strength, patience, and guidance to carry out my studies and complete this dissertation. May endless blessings be upon the seal of the Prophets and Messengers, Prophet Muhammad SWT the best of creation and the first educator of humanity whose legacy continues to enlighten hearts and minds.

We would like to express our sincere gratitude to our supervisor, Dr Ahlam BOUGUELMOUNA, for her efforts, her constant support, her valuable guidance, and her unwavering encouragement throughout this research. Her patience, guidance, insightful comments and academic expertise have played a decisive role in shaping the direction and depth of this thesis. We are truly grateful for the time and effort you have devoted to our academic development. You remain a shining example of an exceptional academic.

Warm thanks are also extended to the English Department students at the licence level at the University of Ghardaïa, whose participation and cooperation were essential to this study. Your engagement and contributions are sincerely appreciated.

We would also like to thank the board of examiners who kindly agreed to assess our dissertation and enhance it with their constructive feedback and insightful comments. Your time and academic contributions are deeply appreciated.

Finally, we extend our gratitude to every individual who has offered us support, assistance or advice, whether in word or deed, from near or far, our heartfelt thanks to you all, to each and every one of you.

Abstract

This study explores the role of AI-based instruction in improving EFL learning, with a focus on EFL students' attitudes at the licence level at Ghardaïa University. With the integration of Artificial Intelligence (AI) tools into instruction, these tools have become essential for enhancing language learning and supporting the English as a Foreign Language (EFL) students both within and outside the educational environment. However, many EFL students still face challenges relating to active engagement, motivation, critical thinking, communicative competence, language proficiency, and independent self-directed learning. Opting for a case study and a descriptive design, this research is carried out via adopting a mixed-methods approach by means of a semi-structured questionnaire. These research instruments were distributed to EFL students at the licence level at the University of Ghardaïa to gather diverse perspectives. The findings reveal that EFL learners generally hold positive attitudes toward AI-based instruction. They reported that AI tools help promote learner autonomy, enhance language proficiency, increase motivation and active engagement, encourage self-learning, and provide immediate feedback. Nevertheless, certain challenges associated with the use of AI tools in language learning have been identified, such as heavy reliance on AI tools and reduced English learning skills. The study recommends integrating AI-based instruction practices into the teaching of English as a foreign language to create more effective, creative and interactive learning environments while preserving ethical values and human-led guidance.

Key-words: AI-based instruction, Artificial Intelligence (AI), EFL learners, communicative competence, language proficiency, learner autonomy.

List of Acronyms

AI: Artificial Intelligence

GenAI: Generative Artificial Intelligence

TELL: Technology-Enhanced Language Learning

CALL: Computer-Assisted Language Learning

EFL: English as a Foreign Language

LLMs: Large Language Models

SAMR: Substitution, Augmentation, Modification, and Redefinition

ICT: Information and Communication Technology

VR: Virtual Reality

AR: Augmented Reality

LMS: Learning Management Systems

TPACK: Technological Pedagogical Content Knowledge

PICRAT: Passion, Immersion, Creativity, Relevance, Active Learning, Technology

TPCK: Technological Pedagogical Content Knowledge Model.

TIM: Technology Integration Matrix

ALSs: Adaptive Learning Systems

PEAR: Ptychographic Experiment and Analysis Robot

List of Tables

Table 1: Participants' Gender.....	46
Table 2: Academic Year.....	47
Table 3: Self-perceived English proficiency	48
Table 4: Students' Use of Technological Tools in Learning English.....	50
Table 5: Frequency of Technology Usage in English Learning.....	51
Table 6: Students' Familiarity with AI Tools in Education.....	52
Table 7: Frequency of AI Tools Usage for Learning English.....	53
Table 8: Types of AI Tools Used by Students	54
Table 9: Main Purposes of AI Tools	56
Table 10: Using AI Tools to Understand Lessons Better.....	57
Table 11: Improving Students' Writing Skills through AI Tools	59
Table 12: Expanding Students' Vocabulary through AI Tools	60
Table 13: Making Learning English Interactive and Engaging through AI Tools.....	61
Table 14: The Increase in Students 'Motivation to Learn English through AI Tools.....	62
Table 15: Students' Heavy Reliance on AI Tools to Do their Assignment	64
Table 16: The Probability of the Incorrect or Misleading Information Provided by AI Tools	65
Table 17: Reducing Students' Critical Thinking Skills through AI tools usage	66
Table 18: Students' Misuse of AI Tools in Academic Cheating.....	66
Table 19: The Integration of AI Tools into English Language Teaching at University Level	68
Table 20: Teacher's Guidance on How Students Use AI Tools Effectively	69
Table 21: The Advantages of Using AI Tools in Learning English.....	70
Table 22: The Challenges of Using AI Tools in Learning English.....	71

List of Figures

Figure 1: Participants' Gender	47
Figure 2: Academic Year	48
Figure 3: Self-perceived English proficiency.....	49
Figure 4: Students' Use of Technological Tools in Learning English.....	50
Figure 5: Frequency of Technology Usage in English Learning	51
Figure 6: Students' Familiarity with AI Tools in Education	52
Figure 7: Frequency of AI Tools Usage for Learning English	54
Table 8: Types of AI Tools Used by Students	55
Figure 9: Main Purposes of AI Tools.....	56
Figure 10: Using AI Tools to Understand Lessons Better	58
Figure 11: Improving Students' Writing Skills through AI Tools	59
Figure 12: Expanding Students' Vocabulary through AI Tools	60
Figure 13: Making Learning English Interactive and Engaging through AI Tools	61
Figure 14: The Increase in Students 'Motivation to Learn English through AI Tools	63
Figure 15: Students' Heavy Reliance on AI Tools to Do their Assignment	64
Figure 16: The Probability of the Incorrect or Misleading Information Provided by AI Tools	65
Figure 17: Reducing Students' Critical Thinking Skills through AI tools usage	66
Figure 18: Students' Misuse of AI Tools in Academic Cheating	66
Figure 19: The Integration of AI Tools into English Language Teaching at University Level	68
Figure 20: Teacher's Guidance on How Students Use AI Tools Effectively	69
Figure 21: The Advantages of Using AI Tools in Learning English	71
Figure 22: The Challenges of Using AI Tools in Learning English	72

Table of Contents

Declaration of Originality (Declaration of Honor)	I
Dedication	II
Acknowledgments	IV
Abstract	V
List of Acronyms.....	VI
List of Tables.....	VII
List of Figures	VIII
Table of Contents	IX

General Introduction

1. Research Background.....	1
2. Statement of the Problem	3
3. Research Questions	4
4. Research Hypotheses.....	4
5. Research Objectives	5
6. Significance of the Study	5
7. Research Design	6
8. Dissertation Structure	7

Part One: Literature Review

Chapter One: Technology-Enhanced Language Learning (TELL) in EFL Contexts

Introduction	10
1.1 Transition from CALL to TELL	11
1.2 The Role of Digitalization in Higher Education	13
1.3 Integration of Technology in EFL Classrooms	15
1.4 Pedagogical Advantages of Technology-Enhanced Language Learning (TELL)	23
1.5 Challenges of Technology-Enhanced Language Learning (TELL)	24
Conclusion.....	24

Chapter two: AI-Based Instruction in EFL Learning

Introduction	27
2.1 Overview of AI in education.....	27
2.1.1 Definition of Artificial Intelligence.....	28
2.2 AI- tools for language learning	29
2.3 Pedagogical Models of AI-based instruction	31

2.3.1 Adaptive learning Model.....	32
2.3.2 AIED Bloom's Taxonomy Model.....	33
2.3.3 PEAR Framework Model.....	35
2.3.4 Hybrid Intelligent Feedback Model	36
2.4 Pedagogical Advantages of AI.....	36
2.5 Challenges of AI.....	37
Conclusion.....	40

Part Two: Practical Part

Chapter Three: Methodology and Procedures

Introduction	43
3.1 Research Design.....	43
3.2. Research Population and Sample	43
3.2.1. Students' sample	43
3.3. Data collection Tools	44
3.3.1. Students' Questionnaire	44
3.3.2 Description of Students' Questionnaire	44
3.4. Questionnaire Results Analysis.....	46
3.5. Discussion of the findings.....	73
Conclusion.....	77
General Conclusion.....	80
Recommendations	83
Reference List	86
Appendices.....	93

ملخص البحث

General Introduction

General Introduction

1. Research Background
2. Statement of the Problem
3. Research Questions
4. Research Hypotheses
5. Research Objectives
6. Significance of the Study
7. Research Design
8. Research Design
9. Dissertation Structure

General Introduction

1. Research Background

In the twenty-first century, technology has become an essential part of life. Its use is not limited to personal reasons, but most professions commonly involve it (Dudeney & Hockly, 2007). Nowadays, the world is witnessing a growing influence of digital technology in professional and educational processes, working as the “wings” that allow the educational world to fly farther and faster, leading to an actual transformation of teaching methodologies (Rosak-Szyrocka, 2024).

Learning English is fundamentally an attempt to communicate with others, and because effective teaching is based on communication, communicative competence has become the primary goal of teaching English as a foreign language (Kranthi, 2017). Long depending on textbooks, teacher led explanations, planned writing exercises, and traditional EFL training has consistently resulted in inflexible learning environments that fail to meet the different needs of each student (Chenini & Sebrou, 2025). Therefore, it is no longer sufficient for learners to acquire knowledge in a decontextualized way, such as teacher dominated grammar translation methods, they are now anticipated to use the language effectively and proficiently in real-world contexts (Kranthi, 2017). This shift reflects a fundamental change in teaching methods, as teachers have shifted from a teacher-centered to a learner-centered approach (Ibrahim et al., 2023). Consequently, educational institutions are continuously exploring new ways to enhance student engagement and expression.

The university is a vital environment for this advancement, acting not just as a place for lectures but as a space for a basic academic level of language knowledge and new social skill acquisition (Yassin et al., 2026). For English as a Foreign Language (EFL) learners at the licence level, the university should be a place where language is practised through real-world situations. In this regard, the rapid advancement of technology has opened new gateways for knowledge.

The field has transformed from Computer-Assisted Language Learning (CALL), which centered on isolated drills, to Technology-Enhanced Language Learning (TELL), where technology is ubiquitous and supports interaction both inside and outside the educational environment (Radhakrishnan, 2017).

Technology is no longer a fringe course enhancement of interest to only enthusiastic 'technophile' instructors, learners, and managers, but rather, it has an importance for everyone involved in language teaching, effective interaction, and foster the development of diverse language skills (Radhakrishnan, 2017). It improves English language learning and positively affects students' motivation to study the language (Iberahim et al., 2023).

In contemporary English as a Foreign Language (EFL) contexts, Artificial Intelligence (AI) represents a significant component of modern university life. The rapid development of artificial intelligence (AI) has significantly reshaped higher education, particularly in the field of language learning and teaching. Since the public release of large language models (LLMs) like ChatGPT by OpenAI, teachers and scholars have been considering about ways to use to facilitate learning, improve academic achievement, and support communication skills development (Yassin et al., 2026). AI tools such as large language models like ChatGPT and automated writing assistants such as Grammarly provide students meaningful ways to practice English by offering instant feedback and personalized support (Chenini & Sebrou, 2025). When used correctly, these tools can promote learner autonomy, provide instant feedback, enhance writing accuracy, and create authentic contexts for language use (Chenini & Sebrou, 2025). They help students develop not only language linguistic accuracy but also vital 21st-century skills such as digital literacy and communication (Keengwe, 2015).

Nevertheless, in many EFL environments, students may misuse these tools or rely on them excessively, leading to "cognitive laziness" or academic integrity problems (Iberahim et al., 2023). At the licence level, students often fail to use AI critically because they need explicit

guidance on how to evaluate machine-generated output, which can sometimes be incorrect or contextually misleading. This highlights the crucial role of the teacher as a guide and facilitator. It is important for educators to ensure that learners use AI critically and balance between technology and human education as well as self-reflection (Chenini & Sebrou, 2025).

To successfully manage this integration, various pedagogical models have been proposed (Wang, 2023). Models such as SAMR (Substitution, Augmentation, Modification, and Redefinition) and PICRAT provide educators with a path to ensure that technology does not only replace traditional methods but transforms the learning experience into something more interactive and creative (Boateng & Kalonde, 2024).

Given this context, the current study seeks to explore EFL students' attitudes toward the impact of AI-based instruction on their language learning at the licence level. By examining learners' perceptions, the study aims to explore the role of AI-based instruction in improving EFL learning at the licence level at the University of Ghardaïa, while preserving ethical values and human-led guidance.

2. Statement of the Problem

With the increasing development of artificial intelligence in the field of education, AI-based instruction has become one of the most prominent modern approaches used in teaching English as a foreign language. It contributes to providing effective and interactive learning environments, promoting learner autonomy, improving students' language proficiency in learning English, and increasing their motivation and active engagement as well. However, the increasing and unguided use of AI tools raise several concerns regarding heavy reliance on those tools and their potential impact on reduced English learning skills, creativity, and critical thinking. Therefore, the impact of AI-based instruction on the learning of English as a foreign

language still requires further study, particularly in the context of English language students at the licence level at the University of Ghardaïa.

3. Research Questions

This study attempts to answer the following questions:

1. To what extent does AI-based instruction contribute to improving the academic performance and language proficiency of EFL students at the licence level?
2. How does AI-based instruction affect EFL students' motivation and active engagement in learning English as a foreign language?
3. To what extent does AI-based instruction contribute to enhancing learner autonomy and developing self-directed learning skills among EFL students at the licence level?
4. What are the main challenges resulting from the excessive and unguided use of AI tools in English language learning among EFL students at the licence level?

4. Research Hypotheses

In order to answer these research questions, this study hypothesizes that:

1. It is hypothesized that AI-based instruction contributes to improving the academic performance and language proficiency of EFL students at the licence level by providing immediate feedback that enables them to understand their lessons better and improve the quality of their language production.
2. It is hypothesized that AI-based instruction positively increases students' motivation and active engagement in learning English by providing a personalised and interactive learning environment.
3. It is hypothesized that AI-based instruction contributes to enhancing learner autonomy among EFL students at the licence level by enabling them to identify and

correct their own mistakes independently and develop their self-directed learning skills.

4. It is hypothesized that excessive and unguided use of AI tools may lead to certain challenges, such as reducing EFL students' critical and creative thinking and the potential for academic cheating.

5. Research Objectives

1. To explore the impact of AI-based instruction on English language learning among EFL students at the licence level at the University of Ghardaia.
2. To identify the role of AI-based instruction in improving EFL students' academic performance and language proficiency.
3. To examine the impact of AI-based instruction on EFL students' motivation and active engagement in learning English as a foreign language.
4. To reveal the extent to which AI-based instruction contributes to enhancing learner autonomy and developing self-directed learning skills among EFL students at the licence level.
5. To identify the main challenges resulting from the excessive and unguided use of AI tools in English language learning among EFL students at the licence level.

6. Research Significance

This study aims to examine the role of AI-based instruction in enhancing English as a foreign language learning instruction while preserving ethical values and human-led guidance, with a particular focus on exploring the attitudes and perceptions of EFL students at the licence level at the University of Ghardaia. The study also addresses EFL students at the licence level to gain a broader understanding of their views on the integration of AI-based instruction into

their language learning. The study explores the potential of this type of instruction to improve EFL learning necessary for academic success.

Furthermore, the study aims to investigate whether AI-based instruction contributes to increasing the motivation and active engagement of licence students learning English as a foreign language, empowering them to become independent "self-directed learners" who take responsibility for their learning process. Thus, providing a basis for integrating more student-centered technological practices in EFL contexts. Moreover, the study aims to raise awareness among EFL learners regarding the guided use of AI tools and the importance of addressing ethical and cognitive challenges, such as plagiarism and metacognitive offloading.

Additionally, drawing on models of educational technology integration such as SAMR and PICRAT and AI-based instruction models, the study emphasizes the need to integrate AI into English language teaching in a responsible and guided manner, ensuring that it is used as a 'cognitive partner' that enhances students' thinking and creative abilities, while adhering to pedagogical oversight to prevent AI from replacing authentic human cognitive effort.

Ultimately, the study emphasizes the need to adapt English language teaching to include interactive and purposeful experiences supported by AI, taking into account learners' interests and individual needs, so as to meet the complex communication requirements of the digital age and real-life situations.

7. Research Design

This study employs a descriptive research design using a mixed methods approach to explore licence-level EFL students' attitudes and perceptions regarding AI-based instruction by collecting both quantitative and qualitative data in order to obtain a more comprehensive understanding of the research problem. As stated by Creswell (2014), "This mixing" or blending of data, provides a stronger understanding of the problem or question than either by itself" (p.

215). The study is conducted at the University of Ghardaïa, involving a purposive sample of 37 licence students of the English language. Data is collected using a semi-structured questionnaire comprising 22 questions, including close-ended exploring licence students' attitudes and views regarding AI-based instruction, as well as open-ended questions addressing the extent to which students' use of AI tools affects their English language learning.

8. Dissertation Structure

This dissertation is divided into two main parts: the theoretical part and the practical part. The theoretical part comprises two chapters. The first chapter provides an overview of Technology-Enhanced Language Learning in EFL contexts, including the transition from CALL to TELL, the role of digitalization in higher education, the integration of technology in EFL classrooms, the pedagogical advantages of TELL, and the challenges of TELL. The second chapter focuses on AI-Based Instruction in EFL learning, including an overview about AI in education and its definition, AI tools for language learning, pedagogical models of AI-based instruction such as Adaptive learning model, AIED Bloom's Taxonomy model, PEAR Framework model, and Hybrid Intelligent Feedback model, pedagogical advantages of AI-based instruction, and the challenges of AI-based instruction. The practical part of this dissertation focuses on the research methodology and the analysis of data obtained from the questionnaire administered to EFL students at the licence level at the University of Ghardaïa. It also discusses the findings related to students' use of AI tools affect the development of their language learning, and an exploration of their perceptions and attitudes regarding the educational benefits and ethical challenges associated with AI-based instruction.

Part One:

Literature Review

Chapter One:

Technology-Enhanced Language Learning (TELL) in EFL Contexts

Introduction

1.1 Transition from CALL to TELL

1.2 The Role of Digitalization in Higher Education

1.3 Integration of Technology in EFL Classrooms

1.4 Pedagogical Advantages of Technology-Enhanced Language Learning (TELL)

1.5 Challenges of Technology-Enhanced Language Learning (TELL)

Conclusion

Introduction

In the 21st century, technology has become a part of life. Its use is not limited to personal reasons, but most professions commonly involve it (Dudeney & Hockly, 2007). Nowadays, the world is witnessing a growing influence of digital technology in professional and educational processes, working as the “wings” that allow the educational world to fly farther and faster (Rosak-Szyrocka, 2024).

Since learning and teaching English has always been in high demand, new effective ways to teach the language are being explored (Dudeney & Hockly, 2007). Consequently, integration of technology in English teaching has become one of the most common practices (Dudeney & Hockly, 2007), and “it is rare to find a language class that does not use some form of technology” (Radhakrishnan, 2017, p. 162).

This specialized field is well-known as Technology-Enhanced Language Learning (TELL), which uses computer technology, including hardware, software, and the internet to enhance the language teaching and learning process (Radhakrishnan, 2017).

The development of technology teaching began with Computer-Assisted Language Learning (CALL) in the early 1980s, which mostly covers the use of computer programmes to enable learners to learn and practise English. The CALL evolved into Technology-Enhanced Language learning (TELL) around 1990s with its main incorporation of Information and Communication Technology (ICT) to deal with English learning and teaching (Dudeney & Hockly, 2007).

The use of TELL has shifted the focus from teacher-centered instruction toward learner-centered instruction. With the support of technology, teachers have a more facilitative role in guiding their students’ learning by providing cooperative tasks, gathering information, and actively interacting with material sources (Iberahim et al., 2023). It is important to note that

Part one: literature Review

TELL is not a teaching method in and of itself, but rather a strategy that can be utilized in conjunction with a teaching method to improve in learning process(Iberahim et al., 2023). However, there are always two sides to every coin, and TELL is not always as positive as people may believe. For example, students' cognitive thinking potential is limited when they rely too heavily on technology, such as by searching, clicking, and completing the task as quickly as they can to avoid the thinking-enhancing, problem-solving, and information-discovering during the learning process(Iberahim et al., 2023). Furthermore, technology in language classes can lead to teachers becoming slaves to technology rather than playing a leading role in teaching practices, especially for the elderly who are unable to keep up with the rapid development of the modern era of technology (Iberahim et al., 2023).

For this reason, the process of technological integration must be deliberate and planned. This demonstrates that for an effective learning process to occur, the technology used must be current and user-friendly for both learners and instructors (Iberahim et al., 2023).

This chapter focuses on Technology-Enhanced Language Learning in EFL contexts. It explains the transition from CALL to TELL. It then discusses the role of digitalization in higher education. It also reviews the integration of technology in EFL classrooms, followed by highlighting the pedagogical advantages of TELL, and concludes by mentioning the challenges of TELL.

1.1 Transition from CALL to TELL

Computers have been used for language teaching since the 1960s. This history extending more than thirty years, can be roughly categorized into three main stages: behaviouristic CALL, communicative CALL, and integrative CALL (Warschauer & Healey, 1998).

Levy (1997) describes Computer-Assisted Language Learning (CALL) as “the search for and study of applications of the computer in language teaching and learning” (p. 1). The first

Part one: literature Review

stage, behaviouristic CALL (1960s-1970s) functioned as a sub-component of the broader field of computer-assisted instruction, focusing on repetitive language drills, referred to as “drill-and-practice” where the computer viewed as a mechanical tutor. The next stage, communicative CALL, emerged in the late 1970s and early 1980, which corresponded to cognitive theories stressing that learning was a process of discovery, expression, and development. Proponents of communicative CALL emphasized that computer-based activities should focus more on using forms than the forms themselves, teach grammar implicitly rather than just manipulate prefabricated language, and use the target language predominantly or even exclusively. By the late 1980s and early 1990s, critics noted that the computer was still being used in an ad hoc and disconnected fashion, and thus finds itself making a greater contribution to marginal rather than central elements of the language learning process. This led to a new perspective on technology and language learning known as “integrative CALL”, a perspective which seeks both to integrate various skills (e.g., listening, speaking, reading, and writing) and also incorporate technology more fully into the language learning process tutor (Warschauer & Healey, 1998). Then with advanced internet technology, Information and Communications Technology (ICT) has been merged (Dudeney & Hockly, 2007). It has become a standard feature in foreign language courses, which can positively affect foreign language acquisition or learning (Robi'ah & Wijayanto, 2025). The incorporation of ICT led to the emergence of Technology-Enhanced Language Learning (TELL) (Dudeney & Hockly, 2007).

The distinction between Computer Assisted Language Learning (CALL) and Technology-Enhanced Language Learning (TELL) is that the computer simultaneously becomes less visible yet more ubiquitous. The change in focus from computer to technology places direct significance on the media of communication made possible by the computer, which itself often remains unseen, rather than on the computer itself. Whereas in CALL, the

computer assisted learning, it might be asserted that in TELL, the computer supports learning (Radhakrishnan, 2017).

TELL refers to “the use of digital technology, including software, hardware, and the internet to enhance language learning by enabling learners to access online dictionaries, online communication, and view global events” (Iberahim et al., 2023, p. 1512), it is also described as “the use of the computer as a technological innovation to display multimedia as a means of complementing a teaching method” (Radhakrishnan, 2017, p. 163). “It is crucial to note that TELL is not a teaching method in and of itself, but rather a strategy that can be utilized in conjunction with a teaching method to enhance in learning process” (Iberahim et al., 2023, p. 1512).

With the support of technology, teachers have easily shifted from a teacher-centered to a learner-centered approach and they play a more facilitative role in guiding their students' learning by providing cooperative tasks, gathering information, and actively interacting with material sources (Iberahim et al., 2023), “With this, teachers can provide students with authentic, real-world contexts for language learning by utilizing digital tools and resources that support meaningful language use and application” (Perales & Ulla, 2025, p. 8).

1.2 The Role of Digitalization in Higher Education

Digitalization has revolutionized one of the most essential industries in the modern world, which is education. It has proven to be a successful and popular strategy throughout the entire spectrum of the education industry (Rosak-Szyrocka, 2024). It has dissolved the distinction between physical and virtual distance and incorporated more scientific methods for instructors to teach students (Rosak-Szyrocka, 2024).

Part one: literature Review

The literature defines educational digitalization as the use of computer services, media, informatization, and communication technology into education-related processes (Potocan et al., 2025).

However, it is important to recognize that there is no single understanding of the term "digitalization". Some scientists believe that the digitalization in education is a technological accomplishment that began to be applied in the learning process, achieving personalization through the use of modern information and communication tools in the learning process. Others believe that it is assuring the transition of the educational process to a digital form, while others understand it as a method of achieving the goal, and the fourth perspective is the level of technology provision of the actual educational process. A number of scientists agreed that digitalization is a set of practices and technologies that are used in the educational process, aid in achieving the goal and simplify communication between its participants (Volodymyr et al., 2024).

Therefore, digitalization in education is an essential area of reform for this industry (Rosak-Szyrocka, 2024). Today, it can be said that the digitalization of education is the introduction of digital services and technologies into the psychological and pedagogical process of training higher education students. Digitalization involves a fundamentally new format of the educational environment, based on digital technologies that provide convenient and accessible services and platforms for increasing competitiveness, more effective interaction of all participants in the educational process, increasing its transparency, increasing the role of intellectual property, development of digital skills (Volodymyr et al., 2024).

Although now a service or benefit provided by higher education institutions, digitalization is predicted to become a requirement for these institutions' continuity in the future. Achieving the educational goals of the Europe 2020 Strategy is considered to depend more than ever on the effective use of digital technology and learning materials in training and

Part one: literature Review

education (Rosak-Szyrocka, 2024). Enhancing and adding more value to the teaching and learning processes is the function of digital technology and re-sources. With the aim of enhancing teaching and learning methods, educators and students have the ability to use a growing array of digital tools and materials, as well as collaborate through platforms (Rosak-Szyrocka, 2024).

At the same time, digitalization involves the introduction of modern technologies into the educational process, and also by what methods are used. Indeed, the use of "digital" technologies in education is the most stable trend in the development of the world's educational space, enhancing the educational and scientific process while increasing productivity, speed of perception, and assimilation of knowledge. But it is important not only to use special technical equipment, but also to provide an individual approach to each applicant, to prepare teachers for the use of modern technical means (Volodymyr et al., 2024).

Digitalization enables educational institutions to significantly improve the acquisition of the knowledge and skills of education participants, necessary for their life and work in a highly technologically advanced society (Potocan et al., 2025). Although digitalization makes it possible for each person to study independently, critical learning remains difficult. The learning process is being greatly influenced by digital technology. It is already impossible to resist digitalization; future education will be totally dependent on digital platforms and tools (Rosak-Szyrocka, 2024).

1.3 Technology Integration in EFL Classrooms

The rapid advancement of technology has significantly transformed the landscape of education, especially language learning. The integration of technology into English language instruction has become an important practice to enhance students' engagement, motivation, and overall proficiency (Kartini, 2025).

Part one: literature Review

Technology integration in education refers to the process of incorporating various technological tools and resources in the teaching and learning process to enhance both instructional practices and student learning results. It entails the strategic and purposeful use of digital devices, applications, internet resources, and other technological inventions in educational settings to support, enrich, and transform traditional teaching and learning methods. Rather than simply using technology for its own sake, effective technology integration intends to improve the learning experience by making it more engaging, interactive, and accessible. At its core, technology integration is not just about adding digital tools into the classroom. It is about establishing an environment where technology seamlessly enhances and aligns with the curriculum, teaching strategies, and the needs of students. It is a dynamic and continuous process that encourages educators to adapt their teaching methods, to leverage the potential of technology to support diverse learners, foster critical thinking, and prepare students for a technology-driven world (Kartini, 2025).

The purpose of technology integration is multifaceted. It aims to foster creativity, collaboration, and critical thinking among students while also helping in effectively managing their classroom. It also enables students to develop vital 21st-century skills such as digital literacy, communication, and problem-solving, which are essential for success in both academic and real-world contexts (Kartini, 2025).

Technology integration in education opts for a wide variety of technological tools and resources to support teaching and learning. First, hardware includes physical devices like computers, laptops, tablets, and smartphones, which provide platforms for learning and enable students to access educational materials on the go. This category also encompasses interactive whiteboards that combine traditional teaching methods with digital tools, as well as document cameras, projectors, and immersive devices like virtual reality (VR) and augmented reality (AR) that offer 3D learning experiences. Second, Software plays a critical role in education by

Part one: literature Review

providing the tools necessary for creating, managing, and delivering educational content using Learning Management Systems (LMS) such as Google Classroom or Moodle which enable teachers to organize lessons, assignments, and assessments in a centralized platform(Kartini, 2025). Educational apps such as Duolingo or Khan Academy cater to specific subjects, providing interactive lessons, quizzes, and activities that engage students in learning. Productivity tools like Google Docs or Microsoft Office facilitate document creation and collaboration, while simulation software such as GeoGebra or PhET Interactive Simulations helps students visualize and experiment with complex concepts(Kartini, 2025). Third, Digital content refers to multimedia resources such as e-books, videos, podcasts, and online courses that enhance the learning experience that make learning more dynamic by offering interactive features like quizzes and multimedia elements. Multimedia resources such as YouTube videos or podcasts provide varied formats, offering different ways to engage students. Online platforms like Coursera or edX expand access to higher education and specialized knowledge. Interactive learning platforms such as Quizizz combine games, quizzes, and lessons to make learning fun and engaging for students(Kartini, 2025). Fourth, internet resources are essential for research, collaboration, and accessing a broad range of educational materials. Search engines like Google enable students to find relevant information, articles, and research papers, while online databases and journals like JSTOR or Google Scholar provide access to peer-reviewed research and academic content. Collaborative platforms such as Google Drive and Microsoft OneDrive allow students and instructors to share, edit, and store documents in the cloud, facilitating teamwork and organization. Social media and educational forums like Twitter or Reddit provide platforms for discussions, resource sharing, and professional learning networks(Kartini, 2025). Fifth, assistive technologies support students with disabilities, increasing that learning is accessible and inclusive. Speech recognition software, like Dragon NaturallySpeaking, allows students with physical disabilities or learning challenges to dictate text. Screen readers such as

Part one: literature Review

JAWS or NVDA convert text on a screen into spoken words, helping students with visual impairments. Tools like closed captioning or subtitles support students who are deaf or hard of hearing, while text-to-speech software like Read&Write or Natural Reader aids students with reading difficulties by converting written content into audio (Kartini, 2025).

Technology integration in education is not just about using digital tools but about strategically incorporating technology into teaching and learning to enhance educational outcomes. Several models have been developed to guide educators in applying technology in meaningful ways (Kartini, 2025). Technology integration models are theoretical constructs that guide researchers, educators, and other stakeholders in conceiving the phenomenon of technology integration (Kimmons et al., 2020). These models provide frameworks for educators to align their teaching strategies with technology to enhance active learning, critical thinking, and deeper engagement with content (Kartini, 2025)

The first model is TPACK (Technological Pedagogical Content Knowledge) model represents the synthesized form of knowledge for the purpose of integrating ICT/educational technology into classroom learning and teaching. The core components of TPACK are content knowledge, pedagogical knowledge, and the technological knowledge (Chai et al., 2013). The model emphasizes that effective technology integration occurs when educators understand not only the content they teach but also the pedagogical methods used and how technology can enhance both areas (Kartini, 2025).

The second model is the SAMR (substitution, augmentation, modification, and redefinition) model, one of the most important models that guide teachers and students, developed by Dr. Ruben R. Puentedura. the SAMR model provides a framework for teachers to effectively use technology in instruction and enhance their students' engagement and motivation (Boateng & Kalonde, 2024). At the Substitution level, technology works as a direct replacement for traditional tools, without any functional change, such as using a word processor

Part one: literature Review

instead of pen and paper. Augmentation represents the next level, where technology still replaces traditional tools but adds functional improvements, like using a word processor with spell-check aspects. At the Modification level, technology enables for significant redesign of learning tasks, allowing students to collaborate in real-time on digital platforms. Finally, Redefinition signifies a transformative level of technology use, where entirely new tasks are made possible by technology, such as collaborating with students globally through online tools (Kartini, 2025).

The third model is The PICRAT Model stands for Passion, Immersion, Creativity, Relevance, Active Learning, and Technology, each representing a crucial component of effective technology use in education. This model stresses the significance of igniting students' passion for learning by incorporating technology that is exciting and motivating. Immersion refers to creating deeply engaging learning experiences where students are fully engaged in the subject matter. The model also emphasizes fostering creativity by encouraging students to use technology in innovative ways, while assuring that the technology used is relevant to their lives and experiences. Active learning entails students actively engaging with the content, and technology should facilitate this process. Lastly, the model proposes that technology should be used thoughtfully and meaningfully to enhance the learning process (Kartini, 2025).

The fourth model is the Four Cs Model, which is based on the idea that technology should assist develop four essential skills for 21st-century learners: Collaboration, Communication, Critical Thinking, and Creativity. This model stresses the relevance of using technology to support collaboration among students, helping them work together on projects and share ideas. Technology also supports communication, allowing students to express their ideas through various digital platforms such as emails, blogs, or social media. Furthermore, the model emphasizes fostering critical thinking skills by allowing students to analyze, evaluate, and synthesize information with technology. Finally, it stimulates creativity by providing

students with the tools to create original content, such as videos, podcasts, or digital art (Kartini, 2025).

The fifth model is the TPCK (Technological Pedagogical Content Knowledge) Model. The inception of the idea of TPCK is Mishra's (1998) theory of three varieties of knowledge, which are identified as content, theory, and technological knowledge (Erduran & Ince, 2018).

TPCK is an extension of the TPACK framework, emphasizes how technology can be used to enhance both teaching practices and content delivery. This model evaluates the integration of pedagogical methods with technology to better engage students and deliver subject matter effectively. Teachers who understand how to combine technological tools with effective teaching strategies are better positioned to create a dynamic and impactful learning experience for their students (Kartini, 2025).

The sixth model is Technology Integration Matrix (TIM), which is a potential measure of both the level of technology in the classroom as well as an indicator of student participation (Barbour, 2014). It offers a comprehensive framework to evaluate how technology is integrated into teaching. The TIM assess technology integration across five levels: Entry, Adoption, Adaptation, Infusion, and Transformation. At the Entry level, technology is employed in a limited manner, often for administrative tasks or basic functions. As teachers move to the Adoption level, they start to use technology for specific educational tasks, such as creating multimedia presentations. The Adaptation level stands for a deeper integration of technology into teaching methods, allowing for more dynamic and interactive lessons. At the Infusion level, technology is integrated into daily classroom activities, with its use becoming routine. At the Transformation level, technology significantly changes the way students learn, creating new opportunities for collaboration, creativity, and knowledge construction (Kartini, 2025). Teachers and administrators can use the TIM to enhance both the level of technology in the teacher's classroom while potentially improving student engagement for that same class. Using

Part one: literature Review

TIM provides teachers more control over improving their student engagement while reducing the need for more costly additional student surveys (Barbour, 2014).

Despite the increasing recognition of technology's role in education, its implementation in English language learning faces challenges. One of the primary challenges is the availability of technological infrastructure. Schools in different regions may have varying levels of access to digital devices, internet connectivity, and multimedia resources, which can influence how effectively teachers can integrate technology into their instruction. Moreover, teachers' digital literacy levels also play a crucial role in determining how well they can utilize technological tools in the classroom. Some instructors may lack the necessary training and confidence to integrate technology into their lessons, leading to underutilization of available resources. As technology continues to evolve, its role in language education will only become more prominent (Kartini, 2025).

Therefore, it is essential to explore the various ways in which teachers can harness technological tools to support student learning and overcome potential barriers (Kartini, 2025). “By addressing these challenges and leveraging the opportunities that technology presents, educators can promote a more inclusive and effective English language learning environment” (Kartini, 2025, p. 3).

Ultimately, technology integration in education should be observed as a transformative tool that not only enhances the delivery of content but also helps in reshaping the learning environment into one that is more dynamic, flexible, and capable of supporting diverse learning pathways. Successful integration needs a thoughtful and strategic approach, considering the pedagogical goals, the resources available, and the capacity of both students and educators to embrace and effectively utilize technology (Kartini, 2025).

Part one: literature Review

Technology integration enhanced students' engagement and motivation by using interactive tools such as multimedia presentations, educational games, and simulations and virtual reality experiences which make learning more exciting and relevant. By incorporating digital resources that align with students' interests and preferences such as The use of game-based learning and other interactive technologies, teachers can create an engaging learning atmosphere that encourages active participation and fostering a more enthusiastic approach to learning (Kartini, 2025).

It supports Personalized learning, which is the ability to tailor learning experiences to the individual needs of students through digital tools and platforms that provide personalized feedback, assessments, and learning pathways that cater to students' varying abilities and learning styles. This personalized approach allows students to learn at their own pace, enhancing their understanding and retention of knowledge (Kartini, 2025).

Technology integration improves collaboration and communication by allowing students to work together on projects and share ideas in real-time, regardless of physical distance through tools such as online discussion forums, collaborative documents, and video conferencing software that enable students to engage in group work more effectively (Kartini, 2025). These platforms support not only peer-to-peer learning but also increase teacher student communication. Collaborative technologies aid students develop essential teamwork and communication skills that are vital for success in both academic and professional settings. Through collaborative platforms, students can interact with peers from different backgrounds and perspectives, expanding their learning experience (Kartini, 2025).

It also provides access to a wealth of resources and information that was previously inaccessible in traditional classrooms by using the internet, digital libraries, and educational platforms that provide students with access to vast amounts of information, research, and educational materials. This availability allows students to explore subjects beyond the

classroom curriculum, fostering a more autonomous and inquiry-based learning approach. Teachers can integrate diverse digital resources such as eBooks, research papers, podcasts, and videos to complement traditional textbooks, enriching the learning experience and catering to various learning preferences (Kartini, 2025).

Technology integration Facilitates critical thinking and problem solving by providing opportunities for students to engage in complex tasks and projects that require analytical thinking and creativity (Kartini, 2025). “Tools such as simulations, virtual labs, and programming software allow students to experiment, analyze data, and solve real-world problems in a controlled digital environment” (Kartini, 2025, p. 21).

Despite these advantages, the success of technology integration in language learning largely depends on teachers' ability to use these tools effectively and adapt them to students' learning needs (Kartini, 2025).

1.4 Pedagogical Advantages of Technology-Enhanced Language Learning (TELL)

Over the last few decades, the educational industry has been swamped with a variety of latest application, new equipment, and innovative software. Some studies have been performed for the advantages of TELL (Iberahim et al., 2023).

Using TELL provides significantly more flexibility and caters to a broader range of learning styles within language learners compared to traditional styles of teaching (Kranthi, 2017). “TELL can be used alongside textbooks for a much more in depth learning experience” (Kranthi, 2017, p. 32). The use of TELL has shifted the focus away from teacher-centered instruction and toward learner-centered instruction.(Iberahim et al., 2023). TELL transforms the classroom into a student centered environment where students can choose order in which material is presented to them and control the pace of learning progress.It improves students' motivation and develops better attitudes towards learning. The research indicates that students'

attitudes and motivation tend to be better if they have control over their learning and that some students can learn effectively if given the opportunity to control the amount and sequence of their work (Kranthi, 2017). It also boosts student motivation and fosters positive attitudes toward language learning (Iberahim et al., 2023). Learning is no longer limited to the area within the classroom, its environment is enlarged. Students can learn about language at home and practise language in class (Kranthi, 2017).

1.5 Challenges of Technology-Enhanced Language Learning (TELL)

There are always two sides to every coin, and TELL faces its own set of challenges because it is not always as positive as people may believe (Iberahim et al., 2023). Students' cognitive thinking capability is limited when they rely too heavily on technology, such as by searching, clicking, and finishing the task as quickly as they can to avoid the thinking enhancing, problem-solving and information discovering during the learning process. When students resort to 'search and click' to complete tasks quickly, they are delegating complex mental processes to a machine rather than doing them themselves. This demonstrates that students should be aware of their own limitations when using technology, even if it is at their fingertips. It is crucial that both teachers and students have a fundamental understanding of computer technology before incorporating it into language teaching and learning activities (Iberahim et al., 2023). "It is predicted that if teachers or learners do not have ideas on how to use digital tools, they would encounter a great deal of difficulty during the process" (Iberahim et al., 2023, p. 1514).

Moreover, the technologies used in language learning and instruction are evolving at such a rapid pace that we must keep up with their applications and developments. Because certain technologies become outdated quickly and are not being utilized again, there is a recurring need to analyze technology used in language instruction on a frequent basis. Hence, this is to reconsider previous, present, and future practices (Iberahim et al., 2023).

Conclusion

This chapter asserts that Technology-Enhanced Language Learning (TELL) signifies a fundamental shift where the computer becomes less visible yet more widespread. This development moves language instruction beyond traditional drills towards a student-centered environment that enhance learner autonomy and motivation while the teacher play a role of a facilitator, linking the gap between digital tools and pedagogical goals. However, digitalization acts as the “wings” that allow education to advance, provided that teachers develop the digital competence to guide their students effectively. Ultimately, the effective technology integration must be deliberate and planned to overcome challenges such as the risk that students' cognitive thinking potential is limited when they rely too heavily on automated systems.

Chapter two: AI-Based Instruction in EFL Learning

Introduction

2.1 Overview of AI in education

2.1.1 Definition of Artificial Intelligence

2.2 AI- tools for language learning

2.3 Pedagogical Models of AI-based instruction

2.3.1 Adaptive learning Model

2.3.2 AIED Bloom's Taxonomy Model

2.3.3 PEAR Framework Model

2.3.4 Hybrid Intelligent Feedback Model

2.4 Pedagogical Advantages of AI

2.5 Challenges of AI

Conclusion

Introduction

The intersection of artificial intelligence and the teaching of English as a foreign language is significant in the field of modern education. The impact of technology is changing

many different fields, its effects on language learning and instruction are becoming more obvious. which Long relied on textbooks, teacher led explanations, and structured writing exercises, traditional EFL training has frequently resulted in inflexible learning settings that fail to meet the different needs of each student. However, the development of artificial intelligence has brought dynamic, personalised, and flexible learning opportunities that let students to develop their skills by tools of instantaneous feedback and AI-generated recommendations.

This chapter focuses on AI-Based Instruction in EFL learning. It introduces an overview of AI in education and its definition. It then includes AI tools for language learning such as Grammarly, ChatGPT, and AI-powered translation. It also reviews Pedagogical models of AI-based instruction like Adaptive learning model, AIED Bloom's Taxonomy model, PEAR Framework model, and Hybrid Intelligent Feedback model, followed by highlighting the pedagogical advantages of AI, and concludes by mentioning the challenges of AI.

2.1 Overview of AI in education

The conventional generic and homogeneous educational system has come under heavy fire in recent years since it cannot be tailored to each student's needs. Education Systems around the world are moving toward curricula that are more student-centered, personalized, and enhanced by technology. One of the newest technological developments that has caught educators' attention is artificial intelligence (AI) (Bhutoria, 2022). Artificial intelligence (AI) has recently gained significant attention; it is becoming more and more common, influencing conversations in a variety of industries and radically changing the perception of innovation and technology. AI enables machines to simulate human intelligence, enabling data-driven learning, decision-making, and problem-solving. AI-powered systems process massive datasets, find patterns, and generate answers that almost exactly mimic human thinking (Sehlaoui, 2024). AI is

transforming education by introducing state-of-the-art resources that enhance teaching and student involvement. Thanks to its widespread integration into education, educators have the opportunity to adopt new technology and grow with ongoing advancements (Bhutoria, 2022).

2.1.1 Definition of Artificial Intelligence

John McCarthy initially coined the term "AI" in 1956. There is currently no universally accepted definition of artificial intelligence, and there are many different modern explanations. In addition to the interdisciplinary of AI research, it is difficult to develop a common definition of AI due to the constant changes in what AI comprises. Even for professionals, defining artificial intelligence (AI) can be challenging, as its scope is constantly evolving. According to renowned Oxford University AI specialist Nick Bostrom (2014), “A lot of cutting-edge AI has filtered into general applications, often without being called AI because once something becomes useful enough and common enough it is not labeled AI anymore.” This illustrates the evolving nature of AI definitions. Instead, such technologies are often considered algorithms, software, or computer programs rather than AI. Some scholars define AI as a collection of computer capabilities primarily related to learning and problem solving, while others describe AI as systems or devices, such as computers, that simulate human cognitive capacities. For example, Luckin et al. (2016) define AI as systems that interact with the world through intelligent behaviors, such as using available information to make decisions, and advanced capabilities such as visual perception and speech recognition. (Bhutoria, 2022).

2.2 AI- tools for language learning

Part one: literature Review

AI has become a descriptive tool in education and language learning. So that AI tools simplify administrative tasks such as grading and lesson administrative tasks like grading and lesson planning, leaving teachers to focus on personalized instruction and student interaction (Nazaretsky et al., 2022). Moreover, AI-driven analytics provide insights into student learning patterns, enabling tailored instruction and interventions when needed (Hui & Garcia, 2019). Adaptive learning platforms help to identify gaps in student comprehension and adjusting instructional strategies accordingly (Smith, Jones & Lee, 2021). However, the integration of AI also necessitates that educators gain new abilities, such as data interpretation and technological expertise, in order to effectively use AI tools in the classroom (Jiang & Cui, 2020). In the context of language learning, AI presents opportunities to enhance oral skills development and foster motivation. While MOOCs have offered learners flexibility, AI can guide students through relevant exercises—such as Duolingo's adaptive drills and predict disengagement via engagement analytics, thereby maintaining motivation (Chtatou, 2024). AI-enabled applications provide differentiated exercises in comprehension and oral expression—for instance, Speechling's tiered recording tasks that progress from simple sentences to discussions—thus positively impacting linguistic awareness and attitudes toward language learning (Labarthe & Luengo, 2016). Students can track their progress autonomously—for example, through Babbel's real-time dashboards showing completion rates--enjoying flexibility in learning time (Chtatou, 2024).

Grammarly is one of the most commonly used AI tools in language learning. It offers real-time grammar, punctuation, spelling, and stylistic feedback making it simple to use and less daunting for a beginner writer. Grammarly uses written material, find errors, and recommends repairs based on Natural language processing (NLP) and machine learning. When compared to conventional grammar checkers, Grammarly still provides much-needed developmental input on other features including clarity, conciseness, and overall readability;

Part one: literature Review

hence it is a useful device for EFL learners developing their academic, or other writing skills. AI-assisted writing tools such as Grammarly have been shown to help learners notice and fixing mistakes so that their writing accuracy gradually increases over time (Ranalli, 2021).

ChatGPT is a powerful AI tool that helps users in generating ideas, writing long texts on specific topics, and creating fictional stories with helps characters. It simplifies complex topics, summarizes lengthy documents, and offers detailed plans for course design. ChatGPT also facilitates in writing emails in the user's writing style, Data classification, and issue detection for developers. Powered by GPT, ChatGPT excels in generating creative texts, interpreting photos, summarizing long texts, and aiding in website or application development from simple sketches. Additionally, it creates code for video games such as Snake (Sehlaoui, 2024).

AI-powered translation and language-learning tools have gained some traction with EFL learners, in addition to Grammarly and ChatGPT. For example, Google Translate and DeepL employ AI-generated translation models to analyze and comprehend text with enhanced precision. These tools enable students to comprehend foreign books and develop bilingual abilities to some degree, even they cannot fully substitute replace human translation (Chenini & Sebrou, 2025).

Similarly, AI algorithms in applications like Duolingo, it was started by Professor Luis Von Ahn, which provides free language education in a variety of languages and is developed with mobile-friendly features. It uses AI and a voice recognition system to serve over 200 million students in 20 languages. Duolingo personalizes learning activities to each user's skill level, adjusting courses and exercises to their unique learning styles and needs. The platform gives immediate feedback, coaching for challenging learners, and encourages progression through levels. Duolingo also includes a management dashboard for tracking and evaluating learners' progress, such as answer accuracy and response frequency. Immediate feedback,

guidance for struggling learners, and motivates progression through various levels. Additionally, duolingo features a management dashboard for monitoring and assessing learners' progress, including answer accuracy and response frequency (Hemmer, 2022).

In the Algerian EFL context the students generally hold positive attitudes towards AI-powered writing tools and tend to use them as a secondary resource rather than a complete replacement for their own writing. The findings of these studies indicate that such tools can substantially enhance learners' writing abilities, particularly in terms of grammar accuracy, vocabulary enrichment, and style refinement. Students have reported high levels of satisfaction with AI features that help them correct grammatical errors, improve word choice, and enhance overall writing style, suggesting that AI-assisted writing can play a significant role in developing EFL learners' written performance (Kerrouche & Nabi, 2025).

2.3. Pedagogical Models for AI-based instruction

The integration of AI systems into education has significant consequences for pedagogy, and thus for students' learning. AI systems can be used by teachers to scaffold students' interaction with knowledge through generated explanations or recommendations, manage the pacing and sequencing of learning tasks, shape feedback and assessment processes and redefine the division of roles between teachers and learners. In educational research, pedagogy concerns the structured and purposeful design of learning environments, the organisation of educational processes, curriculum design, feedback processes and assessment strategies, and structuring of relationship dynamics between educators, learners and knowledge (Alexander, 2008). A learner-centred approach necessitates that clearly defined educational objectives, rather than technology capabilities, guide the implementation of AI in classrooms. AI use should therefore be directed by clearly defined educational goals objectives focused on students' wellness, critical thinking, creativity, ethical reasoning and responsible engagement in digital contexts.

Established pedagogical models, including Adaptive Learning Model, AIED Bloom's Taxonomy Model, PEAR Framework Model, Hybrid Intelligent Feedback Model, Socio-constructivist AI Model and TEACH-AI Framework remain essential to ensure that AI facilitates active engagement rather than supplanting cognitive effort (Charisi, 2026).

2.3.1 Adaptive learning

Adaptive learning can be defined as a pedagogical approach that utilizes advanced technologies, particularly machine learning algorithms, are used to personalize educational content, teaching methodologies, and evaluation approaches for individual learners (Pliakos et al., 2019). It aims to change the learning process in real time, based on each learner's performance, preferences, knowledge level, and learning style. Through continuous analysis of learner data, including assessment outcomes, interaction patterns, and progress monitoring, adaptive learning systems can give timely and focused interventions by continuously analyzing. Adaptive learning systems are becoming gaining popularity, because they can transmit educational information and adapt to meet the needs of certain students. Educators and practitioners must be prepared to effectively use AI technology and applications, adapting them to improve learning experiences within specific educational environments. It is essential to explore how traditional abilities like critical thinking, collaboration, and creativity may be integrated and cultivated inside AI-driven educational environments (Pliakos et al., 2019). UNESCO underlines that AI in education provides a unique chance to transform teaching and learning methodologies and address important educational difficulties, while emphasizing the importance for policies that prioritize inclusion and equity in the use of AI in education. Modern technology can shape students' expectations and "abilities to access, acquire, manipulate, construct, create, and communicate information" in these digital situations. Personalized learning platforms known as "adaptive learning systems" (ALSs) can be used to design lessons

that are tailored to the learning styles and preferences of students as well as the order and level of task difficulty. While the potential benefits of incorporating AI/ML into e-learning systems are numerous, there remains a paucity of comprehensive study on its actual implementation, benefits, obstacles, and overall impact. Understanding these characteristics is critical for educators, developers, and governments seeking to maximize the full potential of AI/ML-driven adaptive learning while addressing any associated problems (Pliakos et al., 2019).

2.3.2 AIED Bloom's Taxonomy Model

In 1950, Benjamin Bloom, an American educational psychologist, introduced a taxonomy for cognitive learning objectives which has since been foundational in education and pedagogy. After evaluating multiple earlier studies, the researchers created a proposed model that combines contemporary concepts in AI principles with levels of cognitive expertise based on Bloom's taxonomy for learning objectives. This model functions within a modern and contemporary educational framework, offering teachers and students with tools and strategies to improve both the teaching and learning processes and are adaptable in the face of rapid changes. This model also offers a framework for designers of current educational content to consider during their process. The model includes six levels as follows: Collect Adapt, Simulate, Process, Evaluate, and Innovate (Hmoud & Shaqour, 2024).

1. Collect: Utilizing AI-powered platforms can help students in identifying and organizing relevant resources on the internet, reducing time and improving knowledge acquisition based on past knowledge (Salas & Pilco et al., 2022).

2. Adapt: Using AI-powered platforms to develop dynamic educational experiences that adapt to each student's rate of advancement or decline, as well as their level of comprehension (Rosenberg & Koehler, 2015).

3. Simulate: Use AI-powered simulations to apply students' knowledge to real-world circumstances, thereby improving their problem-solving skills (Mayer, 2017).
4. Process: Using AI-powered tools and resources to assist students in visualizing and analyzing data in novel and innovative ways that are not be obvious using traditional methods (Koedinger et al., 2012).
5. Evaluate: Using AI-powered platforms to provide students with tools and resources that allow them to take responsibility for their own learning and track their progress (Zawacki-Richter et al., 2019).
6. Innovate: Giving students with access cutting-edge research and technologies, allowing them to experiment new ideas and solutions (Margaret & Edmonds, 2019).

The integration of AIED, particularly through the use of models such as the proposed model (AIED Bloom's taxonomy), signifies a substantial advancement beyond traditional educational models (Hmoud & Shaqour, 2024). This progression is anchored in AI's capacity to personalize learning experiences, dynamically adjust to the demands of individual students, and provide previously unattainable. In contrast to conventional models that which usually use a standardized technique. AIED Bloom's taxonomy uses data-driven insights to personalize educational content and approaches to the individual profiles of learners. The proposed model stands out by incorporating a thorough understanding of Bloom's taxonomy into an AI framework. As a result, the suggested model stands out not only for its outstanding integration of AI and Bloom's taxonomy but also for its significant contribution to a new educational approach that incorporates both technology and pedagogy (Hmoud & Shaqour, 2024).

2.3.3 PEAR Framework Model

Ptychography is an advanced computational imaging technique for X-ray and electron microscopy. To achieve, high-quality ptychographic images require simultaneous optimization of multiple experimental and algorithmic parameters. Traditionally, parameter selection often relies on trial and error, leading to low-throughput workflows and potential human bias. we create the “Ptychographic Experiment and Analysis Robot” (PEAR), a platform that uses large language models (LLMs) to automate data analysis in ptychography (Yoon & Muller, 2024). To provide high robustness and accuracy, PEAR uses numerous LLM agents to perform activities skills like knowledge retrieval, code generation, parameter recommendation, and picture reasoning. Our study shows that PEAR’s multi-agent design significantly improves the workflow success rate, especially for smaller open-weight models like LLaMA3.18B. PEAR also supports different automation degrees and is designed to work with customized local knowledge bases, to ensure flexibility and adaptability across diverse research environment (Yoon & Muller, 2024). PEAR simulates human experts’ cognitive processes using subject knowledge embedded within several LLM agents to automate and robustly perform tasks like information collecting, code development, knowledge retrieval, and image reasoning. PEAR adaptability makes it suitable for a variety of computational imaging techniques and beyond. We built multiple various levels of automation, ranging from human-in-the-loop to fully automated closed-loop, to support a broad spectrum of users, from novice researchers to experienced experts, adapted to their personalized knowledge bases (Yoon & Muller, 2024).

2.3.4 Hybrid Intelligent Feedback Model

This approach corresponds with the growing focus on human-AI collaboration and hybrid intelligence, which integrates human and artificial cognition to achieve outcomes beyond the potential of either independently (Molenaar, 2022). A promising domain for human-

AI collaboration in education is the use of Generative AI for feedback, referred to as 'GenAI feedback'. This gap underscores the necessity to conceptualise GenAI feedback by anchoring it in current feedback theories and theorising Hybrid Human-AI collaboration for intelligent feedback. To realise GenAI's full potential, it must be judiciously included into educational processes ensuring it enhances rather than replaces human-centred teaching. Hybrid intelligence, is the capacity to blend human and artificial cognition to produce outcomes beyond the capability of either alone. Advanced technologies like GenAI are becoming increasingly important in enhancing feedback systems by supporting and enabling rapid, timely, and high-quality responses (Banihashe et al., 2025).

Effective feedback incorporates several essential elements, often categorised as affective, cognitive, and constructive. Timeliness and tailoring are also crucial for feedback to be effective feedback as information given to an agent to improve a person's abilities or knowledge in a specific task, aligning performance with intended outcomes. Traditionally, the human agents for feedback have been teachers, peers, and students themselves. Nevertheless, this adoption often lacks robust pedagogical frameworks to guide its appropriate and effective use in education (Patchan et al., 2016).

2.4 Benefits of AI in EFL classrooms

The capacity for artificial intelligence (AI) to tailor learning experiences to meet individual student's need, is one of the most significant benefits of AI in education. Conventional classrooms usually take one-size-fits all model. AIs makes it possible platform to evaluate student data in order learning content. This adaptive learning model ensures that every learner experience's focused instruction tailored to their learning speed, ability, and area paradigm (Chenini & Sebrou, 2025).

In general, AI holds significant potential in education, with personalized learning algorithms and immersive technologies such as virtual reality reshaping learning experiences (Labarthe & Luengo, 2016). By evaluating student data, AI assists instructors in creating individualized lesson plans and assessments, hence increasing engagement and motivation (Labarthe & Luengo, 2016). In addition, AI-powered grading systems strengthen evaluation processes, while predictive analytics enable early interventions for struggling students (Chen, Gong, & Lu, 2019). Adaptive learning systems dynamically adjust materials based on student performance, increasing mastery and engagement (VanLehn et al., 2007).

However, despite these promising findings, the increasing use of AI and, more recently, GenAI tools in EFL writing classrooms also raises a number of pedagogical and ethical concerns that need to be critically examined (Chenini & Sebrou, 2025).

2.5. Challenges of AI

There are numerous advantages associated with the use of AI in education. For example, AI saves teachers' time by automating administrative activities such as grading, allowing them to focus on tailored education (Villani, 2018). AI-driven analytics personalize learning experiences and cater to individual student requirements and fostering inclusivity, hence supporting lifelong learning by leveraging data to enhance individual learning experiences (Labarthe & Luengo, 2016). The advancement of AI has resulted in several applications aiming at improving Foreign Language Teaching and Learning (FLTL). However, utilizing these applications and assessing their pedagogical relevance poses significant challenges (Gaudreau & Lemieux, 2020). Nonetheless, leveraging AI in FLTL provides an opportunity to actively engage students while teaching them about AI and its ramifications in our society. While there are clear benefits to using AI in EFL writing education, there are also important issues to consider. Over-reliance on AI tools can hamper students' writing and editing skills, posing a

Part one: literature Review

significant challenge (Aljuaid, 2024). AI's limited capacity to grasp cultural connotations, colloquial language, and the overall mood of a text is another serious concern (Selim, 2024). AI-based tools can effectively spot grammatical faults, but they do not necessarily promote originality and personal voice in writing, which are crucial for natural language acquisition (Wang, 2024). Although there is a growing body of literature on AI in EFL writing instruction, there is still a lack of long-term research on its impact on students' creativity, cultural awareness, and personal expression. In addition, research on how AI tools influence learners' self-editing and independent writing skills remains limited, particularly in diverse cultural contexts (Chenini & Sebrou, 2025).

In recent years, Artificial Intelligence (AI) has advanced significantly, particularly in the fields of language learning and writing. AI-assisted writing tools such as Grammarly, ChatGPT, Jasper, Jenni, Gemini, CopyAI and other generative language models are increasingly used in academic settings to support composition, grammatical correction and content development. These tools are often praised for enhancing productivity, reducing writing anxiety and helping students communicate more effectively in a second language. However, as they become more deeply embedded in educational practice, concerns have been raised about their long-term impact on learners' independent writing skills. Scholars in education and educational technology have begun to question whether reliance on AI tools ultimately supports or undermines students' ability to write autonomously (Budiyo et al., 2025).

The long-term use of AI writing tools creates a tension between short-term benefits and the sustained development of core writing skills. AI solutions such as Grammarly, ChatGPT, Jenni AI, Copilot and Gemini can support learning by delivering real-time feedback on grammar, punctuation and style, allowing students to identify and correct frequent errors and, in principle, reinforcing their understanding of language rules. However, research indicates that,

over time, some students may become overly reliant on these technologies and begin to treat them as a crutch rather than a learning aid (Balabdaoui et al., 2024; Bissessar, 2023). When learners routinely depend on AI to repair their mistakes, they may invest less effort in internalising key writing abilities, which can ultimately hinder the retention of those skills and weaken their ability to write independently. Prolonged use of AI writing tools can lead to a form of “skill atrophy”, whereby students’ capacity to write autonomously deteriorates because they rely on AI for idea generation, syntax and sentence structuring (Sutton et al., 2023; Swain et al., 2023; Awuah et al., 2024). In such cases, the use of AI for writing tasks may prevent students from fully engaging in core cognitive processes such as brainstorming, organising ideas and revising their work. As a result, their long-term learning and their ability to self-edit, produce original content and write fluently may suffer, and their confidence in their own independent writing may gradually decline (Bukartaite & Hooper, 2023).

AI-powered writing tools such as Grammarly, Write & Improve, and ChatGPT have transformed the way EFL students prepare papers. These tools offer feedback, grammar corrections, style suggestions, and personalised writing opportunities that help students improve at their own pace (Mahmud, 2023). These technologies use adaptive AI models to understand each learner’s abilities and deliver personalised feedback (Wale, 2024).

Conclusion

This chapter has outlined the key concepts, tools, pedagogical models, and empirical insights on AI-based instruction in EFL learning and L2 writing. It has emphasised both the benefits and ethical challenges of integrating AI and GenAI, especially in relation to learners’ plurilingual resources, emotions, and agency. Grounded in the PAA framework and genre-based pedagogy, it has argued for a critical, student-centred use of AI that limits overreliance and supports learner autonomy. These insights underpin the empirical part of this study, which

Part one: literature Review

explores how Algerian EFL learners engage with GenAI-based writing tools and how these tools can be used responsibly in writing instruction.

Part Two:

Practical Part

Chapter Three: Methodology and Procedures

Chapter Three: Methodology and Procedures

Introduction

3.1 Research Design

3.2. Research Population and Sample

3.2.1. Students' sample

3.3. Data collection Tools

3.3.1. Students' Questionnaire

3.3.2 Description of Students' Questionnaire

3.4. Questionnaire Results Analysis

3.5. Discussion of the Findings

Conclusion

Chapter Three: Methodology and Procedures

Introduction

The present study focuses on the role of AI-based instruction in improving English as a Foreign Language (EFL) learning of licence students in the English Department at the University of Ghardaïa. In line with the study's objectives, this investigation adopts a mixed-methods approach that combines both quantitative and qualitative data collection tools. To gather reliable data, a questionnaire was administered to students of licence level in the English department at the University of Ghardaïa. This chapter represents the practical part of the research, it outlines research methodology and procedures, it entails a description of the research design, the sample, data collection tools, presentation and discussion of the questionnaire results (data analysis).

3.1 Research Design

A descriptive research design was adopted using a mixed-method approach to examine the role of AI-based instruction in improving English as a Foreign Language (EFL) learning of licence students in the Department of English language at the University of Ghardaïa. The study involved collecting data from 37 licence studentst at the department of English language at the University of Ghardaïa through questionnaires. The combination of both methods allowed for a more comprehensive understanding of the problem under investigation.

3.2. Research Population and Sample

The present study was conducted within the English Department at the University of Ghardaïa, part of the Faculty of Letters and Languages, where English is taught and learned as a foreign language. The sample consists of EFL students from licence level (L1 to L3).

3.2.1. Students' Sample

The sample in this study consists of licence students enrolling in the department of English at the University of Ghardaïa during the academic year 2025–2026. While the total

Chapter Three: Methodology and Procedures

number of students exceeds 700, the questionnaire was randomly distributed, and 37 students responded. The sample includes students from Licence level. The decision to involve students from various academic stages was made to ensure a broader inclusive perspective on Technology-Enhanced Language Learning in EFL Contexts using evidence from AI based instruction.

3.3. Data collection Tools

Data collection is an essential component in conducting research, as it enables the achievement of the study's objectives and the examination of the research questions. In this study, data were gathered using a primary tool: a structured questionnaire which included both close-ended and open-ended items, allowing for both measurable trends and descriptive insights.

3.3.1 Students Questionnaire

A semi-structured questionnaire was administered to licence students of the English language at the University of Ghardaïa to investigate their attitudes towards Technology-Enhanced Language Learning in EFL Contexts using evidence from AI-Based Instruction.

3.3.2 Description of Students Questionnaire

The questionnaire comprised twenty-two (22) questions divided into five main sections: Personal Information, Use of Technology and AI, Use of AI Tools, Perceived Benefits, Challenges and Ethical Issues, and Attitudes Toward AI Integration. The questions consisted of close-ended types, Yes/No, multiple-choice, and Likert-scale format, as well as open-ended prompts that allowed students to provide detailed responses based on their personal experiences and perceptions.

Section I: Personal Information

□ Question (1) gathers basic personal information concerning the gender distribution among participants.

Chapter Three: Methodology and Procedures

☐ Question (2) specifies students' current academic level to contextualize their responses within the learning trajectory.

☐ Question (3) assesses students' self-perceived English proficiency level (beginner, intermediate, or advanced).

Section II: Use of Technology and AI

☐ Question (4) investigates technological tools usage among students in learning English.

☐ Question (5) assesses technology usage among students in their English learning.

☐ Question (6) explores students' familiarity with AI tools used in education.

☐ Question (7) investigates AI tools usage among students for learning English.

Section III: Use of AI Tools

☐ Question (8) identifies the most commonly used AI tools among students.

☐ Question (9) addresses the basic use of AI tools by licence students

Section IV: Perceived Benefits

☐ Question (10) shows AI tools usage on understanding English lessons better.

☐ Question (11) identifies AI tools usage improves students' writing skills.

☐ Question (12) investigates whether students perceive AI tools as effective aids for expanding their vocabulary.

☐ Question (13) identifies AI tools usage Makes learning English more interactive and engaging.

☐ Question (14) explores whether AI tools increase students 'motivation to learn English.

Section V: Challenges and Ethical Issues

☐ Question (15) identifies students' heavy reliance on AI tools to do their assignments.

☐ Question (16) identifies the probability of the incorrect or misleading information provided by AI tools.

Chapter Three: Methodology and Procedures

- Question (17) shows reducing students' critical thinking skills through AI tools usage.
- Question (18) explains the students' misuse of AI tools in academic cheating.

Section VI: Attitudes Toward AI Integration

- Question (19) indicates the necessity of AI tools integration into English language teaching at the university level.
- Question (20) indicates the necessity for teachers to guide students on how to use AI tools effectively.

Section VII: Open-Ended Questions

- Question (21) identifies the main advantages of using AI tools in learning English.
- Question (22) identifies the main challenges of using AI tools in learning English.

3.4. Questionnaire Results Analysis

Section I : Personal Information

Question 1 : Gender?

This question attempts to identify the number of students from each gender.

Table 1: Participants' Gender

Gender	Students number	Percentage
Male	8	22%
Female	29	78%
Total	37	100%

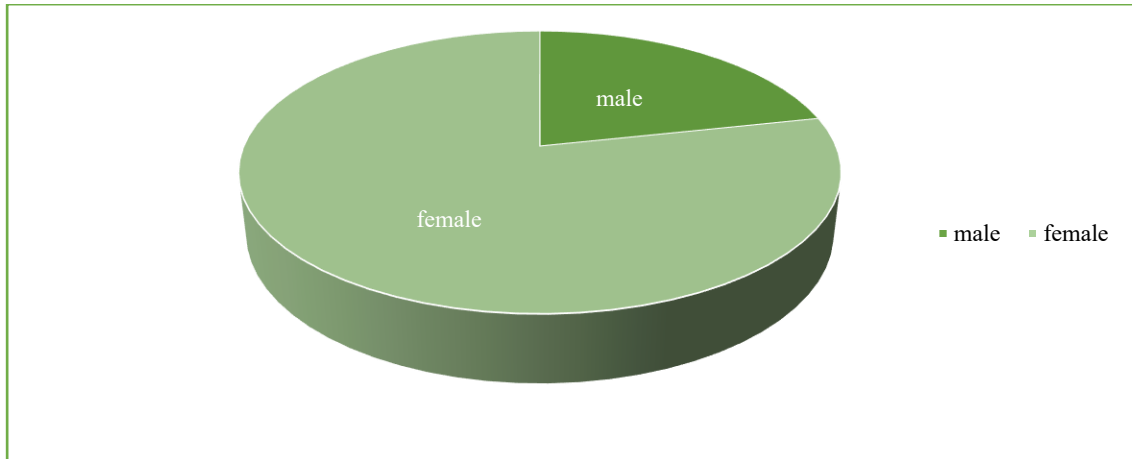


Figure 1: Participants' Gender

The analysis of the gender distribution shows that 78% of the sample identifies as females, while 22% identifies as males, this sample shows a great representation of female students than male students.

Question 2:Year of study?

This question defines the year of study for participants to determine the distribution across different levels in the License Level.

Table 2: Academic Year

Year of Study	Students Number	Percentage
L1	12	32%
L2	12	32%
L3	13	35%

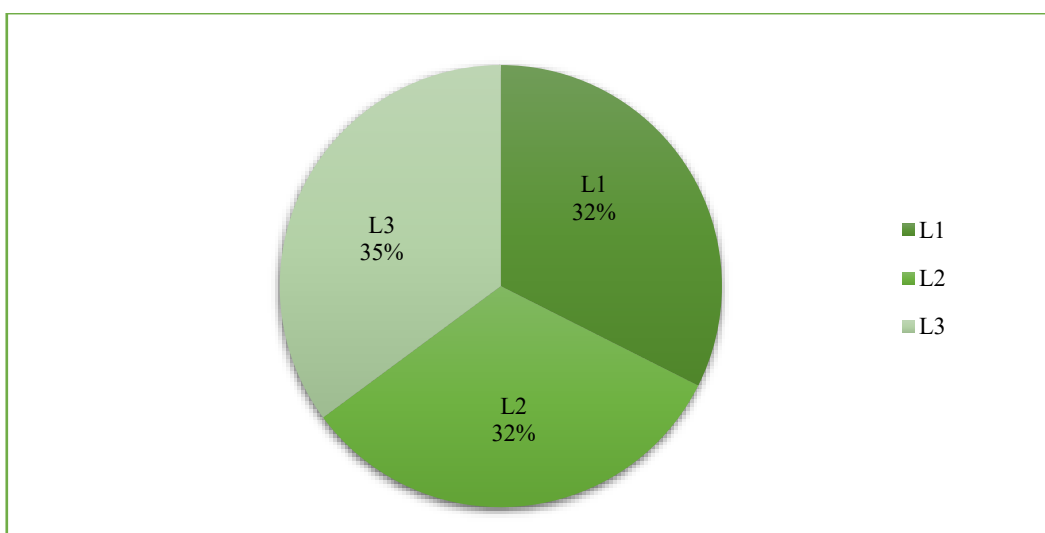


Figure 2: Year of Study

The data shows that third-year licence (L3) students constitute the largest proportion of participants at 35%, followed by first (L1), and second year students (L2), 32% of the participants. These results reveal a diverse sample representing all three license levels within the English department, ensuring a broad overview of academic progress.

Question 3: Your level in English proficiency

This question is looking to evaluate learners' self-perceptions of their English language ability and provide insight into their confidence and skill in using the language.

Table 3: Self-perceived English proficiency

Options	Students Number	Percentage
Advanced	5	14%
Intermediate	30	81%
Beginner	2	5%
Total	37	100%

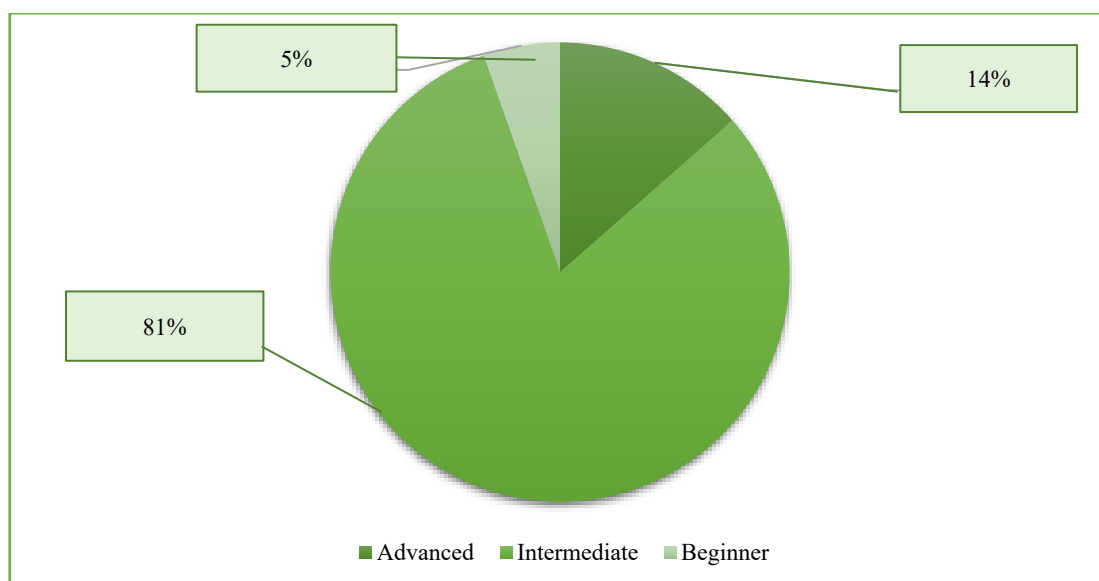


Figure 3: Self-perceived English proficiency

The results indicate that the majority of participants 81%, reported having an intermediate level, while 14% consider themselves advanced and only 5% report a beginner level. This dominant percentage of intermediate-level learners reflects a common trend among EFL students who feel they have moved beyond foundational skills but are not yet fully confident in their abilities. Those who claim to be at a beginner-level remain few, which may indicate a lack of confidence stemming from limited practice. Meanwhile, respondents at an advanced level may reflect a variation in their educational experiences or exposure to English language.

Section II: Use of Technology and AI

Question 4: Do you use technological tools in learning English?

This question investigates whether licence students use technological tools in learning English.

Chapter Three: Methodology and Procedures

Table 4: Students' Use of Technological Tools in Learning English

Options	Students Number	Percentage
Yes	36	97.30%
No	1	2.70%
Total	37	100%

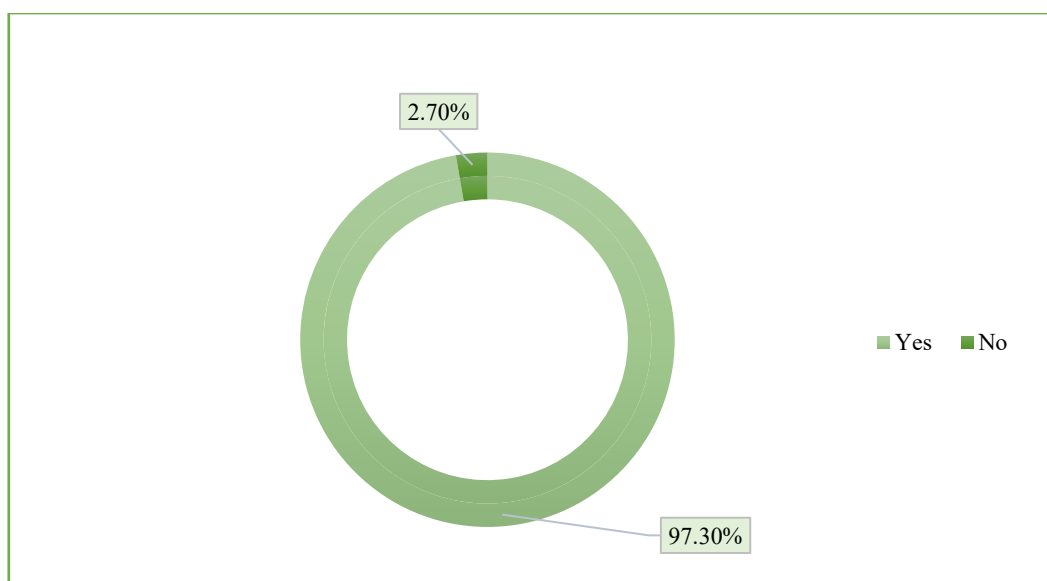


Figure 4: Students' Use of Technological Tools in Learning English

As illustrated in Table 4, a significant majority of students 97.30% reported using technological tools in learning English, whereas only 2.70% indicated they do not use such tools. This strong indication of technology integration apprehension suggests that most students rely on technological tools to learn and improve English.

Question 5: How often do you use technology in your English learning?

Chapter Three: Methodology and Procedures

This question aims to assess the frequency at which licence students use technology in their English learning.

Table 5: Frequency of Technology Usage in English Learning

Options	Students Number	Percentage
Very Often	3	10.81%
Often	12	32.43%
Sometimes	18	48.65%
Rarely	3	5.41%
Never	1	2.70%
Total	37	100%

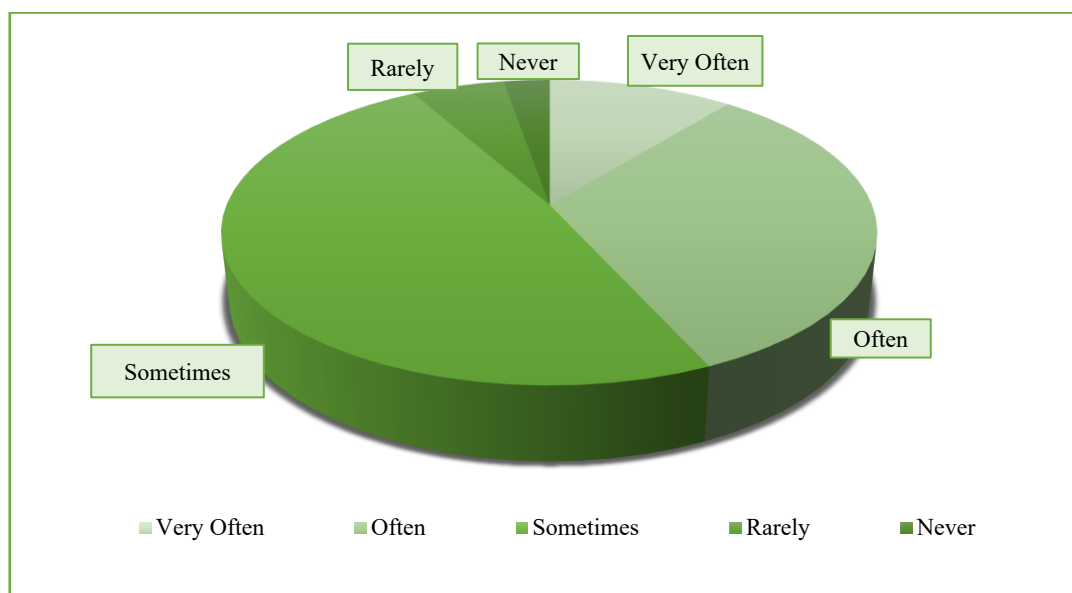


Figure 5: Frequency of Technology Usage in English Learning

According to the responses, the majority of students 48.65% reported that they sometimes use technology in their English learning, followed by 32.43% who often do so, and

Chapter Three: Methodology and Procedures

10.81% who very often use. On the other hand, 5.41% rarely participate, while a small portion 2.70% stated that they never use technology in learning English. These results reveal a high level of technology usage among students, with a significant portion using technology in their English learning. This reflects their interest with modern educational practices.

Question 6: Are you familiar with AI tools used in education?

This question investigates whether students familiar with AI tools for learning English.

Table 6: Students' Familiarity with AI Tools in Education

Options	Students Number	Percentage
Yes	30	81.08%
No	7	18.92%
Total	37	100%

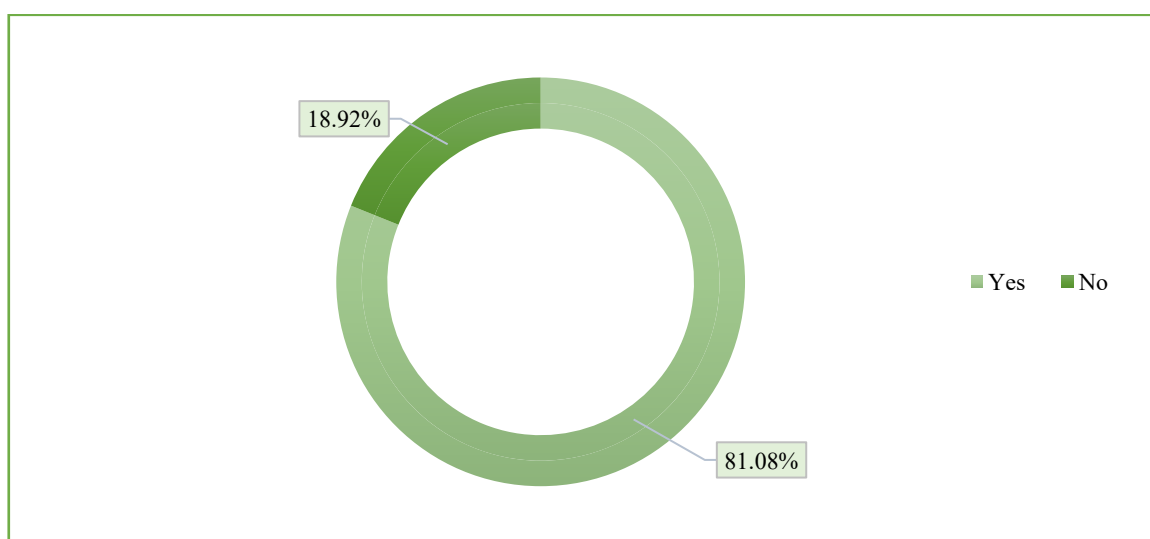


Figure 6: Students' Familiarity with AI Tools in Education

Chapter Three: Methodology and Procedures

The results show that a substantial portion of students 81.08% reported being familiar with AI tools in education, whereas only 18.92% indicated a lack of familiarity.

Question 7: How often do you use AI tools for learning English?

This question aims to assess the frequency at which students use AI tools for learning English.

Table 7: Frequency of AI Tools Usage for Learning English

Options	Students Number	Percentage
Very Often	6	16.22%
Often	7	18.92%
Sometimes	21	56.76%
Rarely	2	5.41%
Never	1	2.70%
Total	37	100%

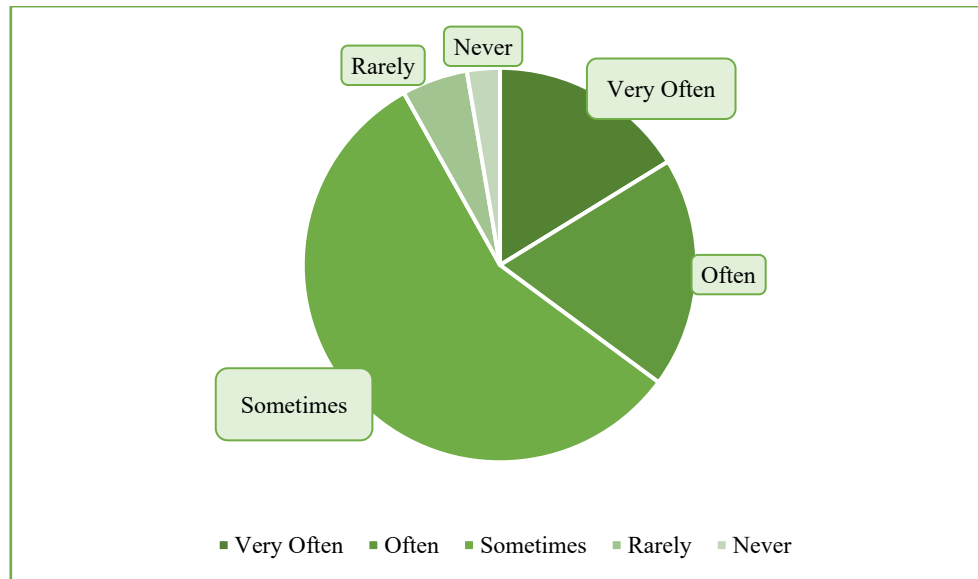


Figure 7: Frequency of AI Tools Usage for Learning English

The analysis shows that a large majority of students 56.76% reported that they sometimes use AI tools for learning English, followed by 18.92% who often do so, and 16.22% who very often use. On the other hand, 5.41% rarely use, while a small portion 2.70% stated that they never use AI tools for learning English. These results reveal a high level of AI tools usage among students, with a significant portion using AI tools for learning English. This reflects their reliance on modern educational tools for language learning.

Section III: Use of AI Tools

Question 8: which AI tools do you use?

This question aims to identify the most commonly used AI tools among students.

Chapter Three: Methodology and Procedures

Table 8: Types of AI Tools Used by Students

Options	Students Number	Percentage
Chat GPT	29	78%
Grammarly	6	16%
Google translate	21	57%
AI writing assistants	2	5%
I do not use AI tools	0	0%
Other	11	30%
Total	37	100%

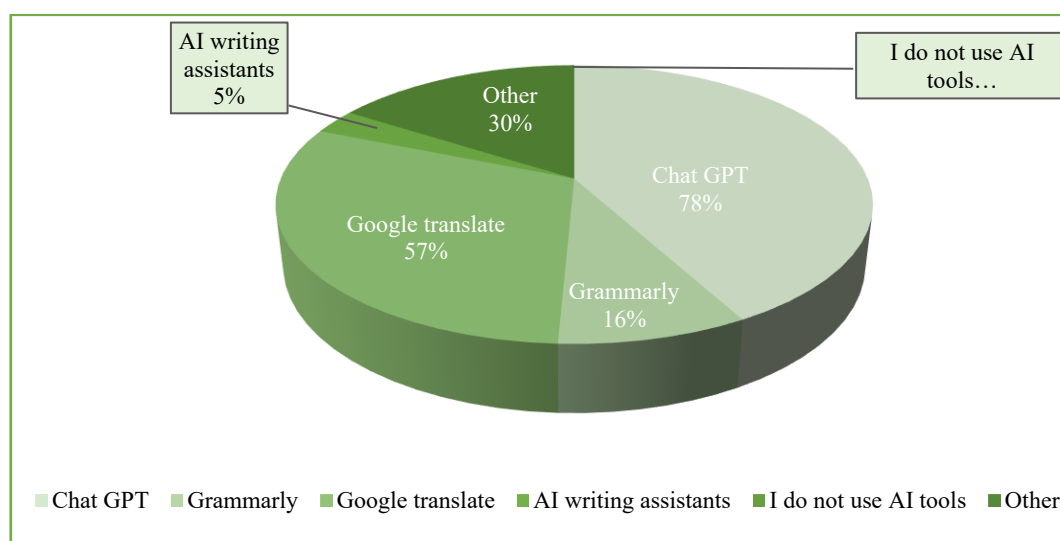


Figure 08: Types of AI Tools Used by Students

As showing, ChatGPT emerged as the most common tool with (78%)of students identifying it as their main struggle in progressing in English, followed by Google Translate (57%). Other tools were selected by (30%) of student, was followed by Grammarly (16%) and AI writing assistants (5%). Notably, noting that no one has indicated that he does not use artificial intelligence tools. These responses suggest that students feel most disabled due to their

Chapter Three: Methodology and Procedures

inability to maintain fluent speech and choose appropriate vocabulary in real time, highlighting the need for practical and communicative activities that build spontaneity, confidence, and vocabulary range. As this is a multiple-choice question, the total number of answers exceeds the total number of participants in the study (37).

Question 9: How do you mainly use AI tools?

This question aims to address the basic use of artificial intelligence tools

Table 9: Main Purposes of AI Tools

Options	Students Number	Percentage
writing assistance	6	16%
Translation	28	76%
Grammar checking	20	54%
Understanding lessons	21	57%
Generating ideas	15	41%
I do not use AI	1	3%
Total	37	100%

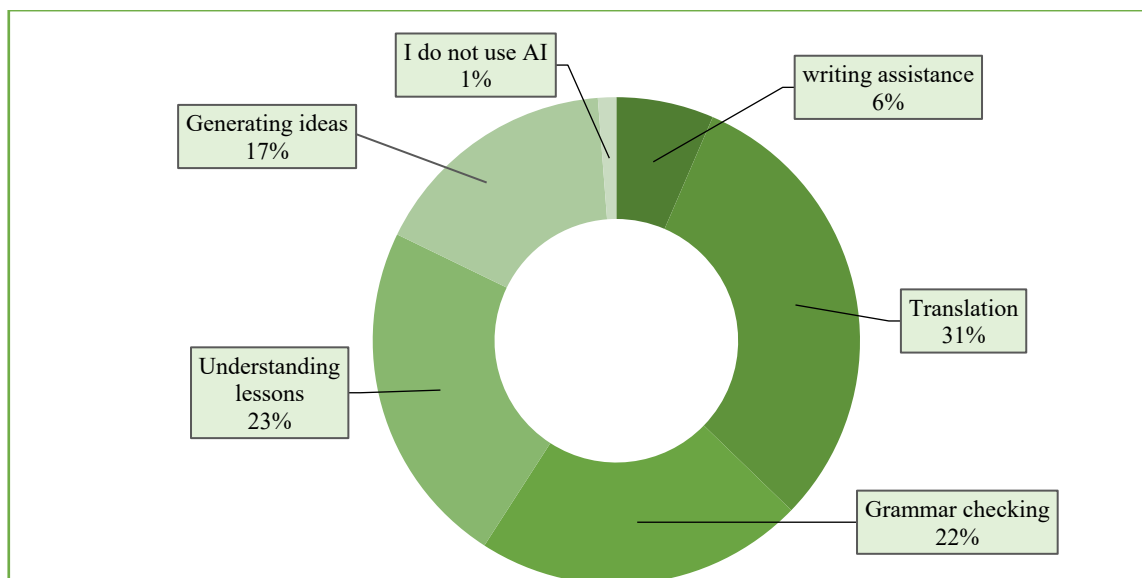


Figure 9: Main Purposes of AI Tools

The results show that 76% of student's benefited use translation a lot, which may reflect their lack of confidence in choosing the right vocabulary in real time and their belief that this tool greatly helps them with practical and communicative activities that build confidence during communication. Understanding lessons was selected by 57% of students, while grammar checking (54%) of students used AI tools as a means of learning and avoiding mistakes. Additionally, generating ideas (41%) which helps the student think carefully before writing, thus enabling them to write a better and easier piece of work and writing assistance (16 %). only 3% participants shared that they do not use any kind of artificial intelligence. As this is a multiple-choice question, the total number of answers exceeds the total number of participants in the study (37).

Section IV: Perceived Benefits

Question 10: AI tools help me understand English lessons better.

This question aims to explore whether students perceive AI tools as helping them understand English lessons better.

Chapter Three: Methodology and Procedures

Table 10: Using AI Tools to Understand Lessons Better

Options	Students Number	Percentage
Strongly Agree	4	10.81%
Agree	26	70.27%
Neutral	7	18.92%
Disagree	0	0%
Strongly Disagree	0	0%
Total	37	100%

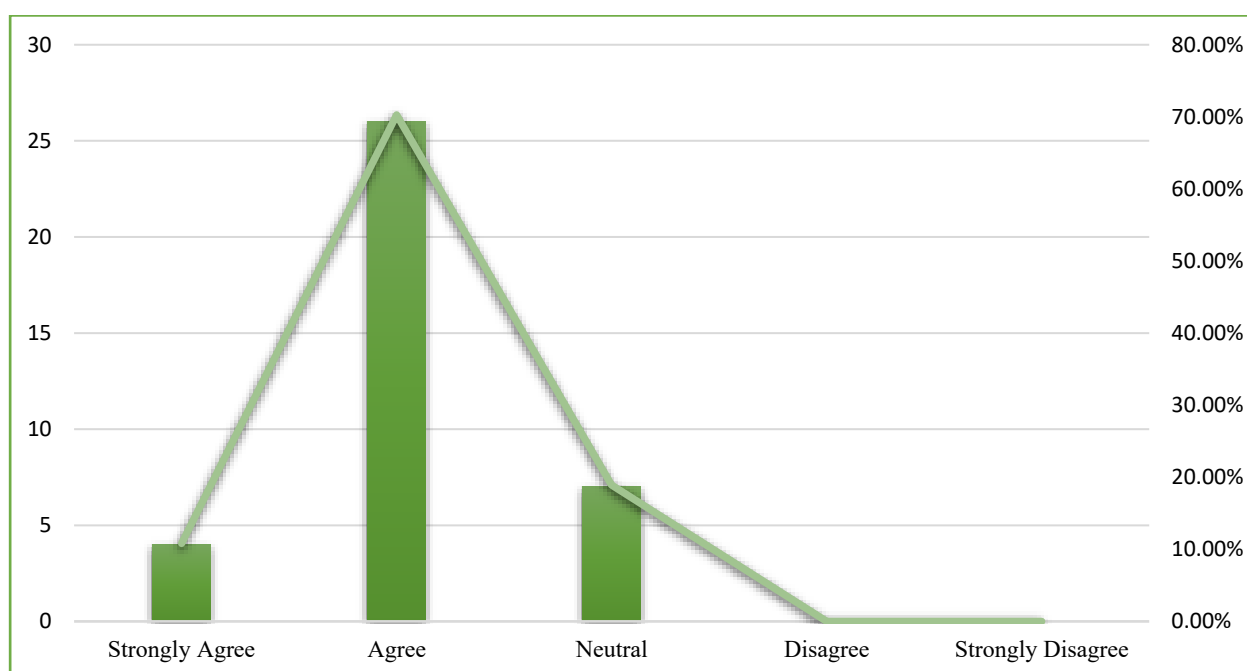


Figure 10: Using AI Tools to Understand Lessons Better

The results indicate that a significant portion of the respondents 81.08% (combining those who agreed and strongly agreed) find that AI tools help them understand English lessons better while 18.92% maintained a neutral stance. In contrast, 0% disagree and strongly disagree.

Chapter Three: Methodology and Procedures

The results strongly suggest that AI tools are a great help for licence students, as most of them agree that using them makes it easier to understand their English lessons in better way.

Question 11: AI tools improve my writing skills.

This question aims to investigate whether students perceive AI tools as persuasive means for improving their writing skills.

Table 11: Improving Students' Writing Skills through AI Tools

Options	Students Number	Percentage
Strongly Agree	2	5.41%
Agree	12	32.43%
Neutral	21	56.76%
Disagree	2	5.41%
Strongly Disagree	0	0%
Total	37	100%

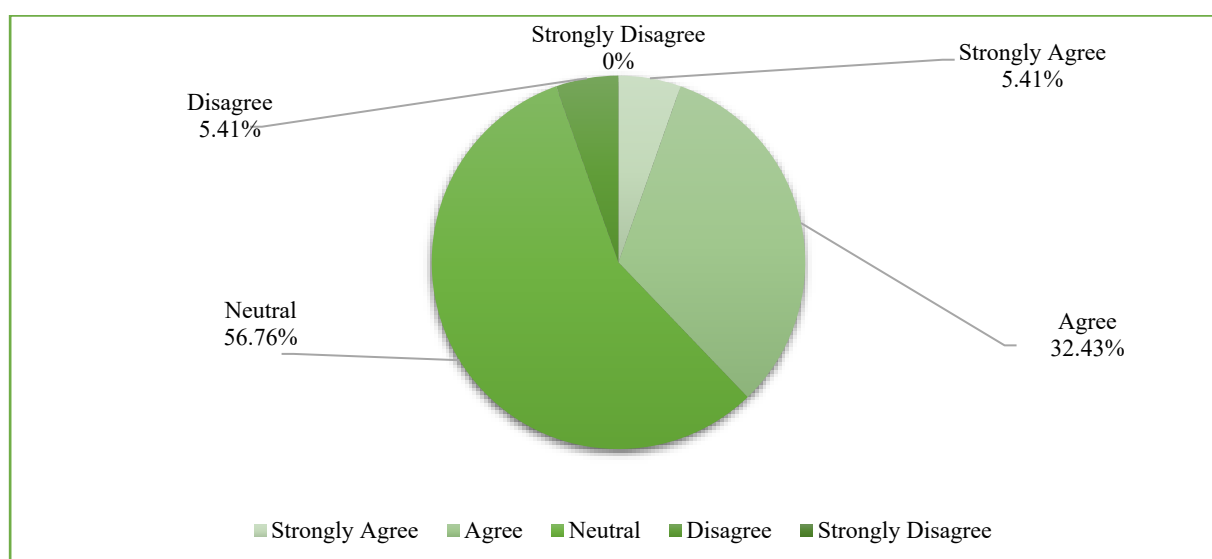


Figure 11: Improving Students' Writing Skills through AI Tools

Chapter Three: Methodology and Procedures

The analysis shows that the majority of students 56.76% expressed a neutral stance about AI tools improving their writing skills. This reflects that the students do not hold a strong affirmative conviction toward the effectiveness of AI in improving their writing skills while 37.84% agreed and strongly agreed while 0% strongly disagree.

Question 12: AI tools help me expand my vocabulary.

This question aims to investigate whether licence students perceive AI tools as effective aids for expanding their vocabulary.

Table 12: Expanding Students' Vocabulary through AI Tools

Options	Students Number	Percentage
Strongly Agree	6	16.22%
Agree	23	62.16%
Neutral	7	18.92%
Disagree	1	2.70%
Strongly Disagree	0	0%
Total	37	100%

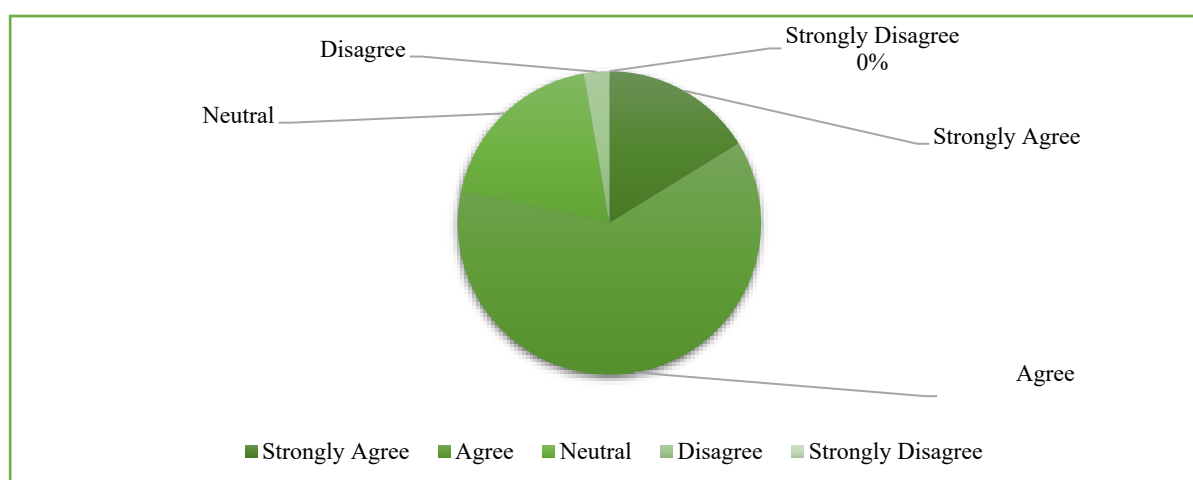


Figure 12: Expanding Students' Vocabulary through AI Tools

Chapter Three: Methodology and Procedures

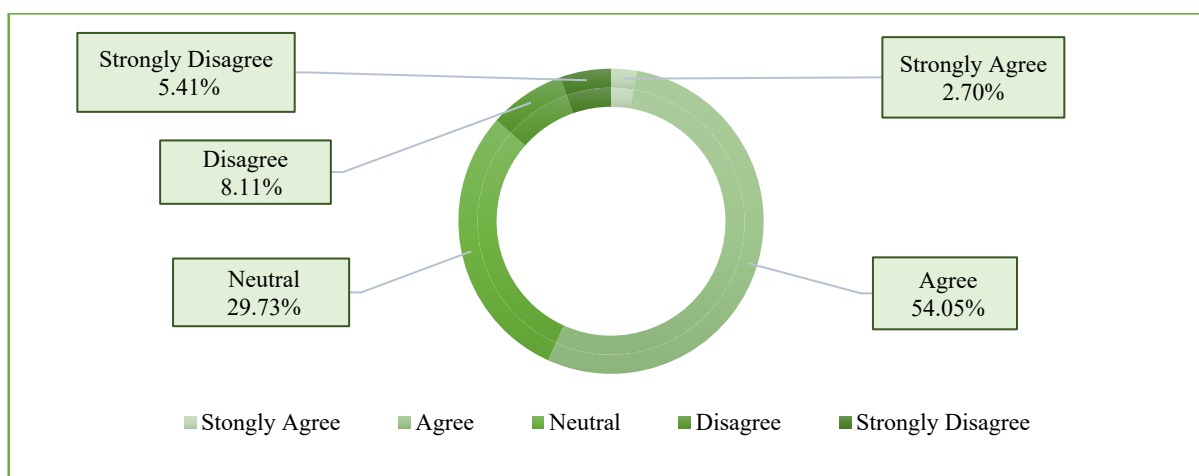
The analysis reveals, 78.38% of students agreed and strongly agreed that AI tools help them expand their vocabulary. This reflects a high level of satisfaction among students regarding vocabulary through AI tools. In contrast, 2.70% disagreed, and 18.92% remained neutral.

Question 13: AI tools make learning English more interactive and engaging.

This question aims to explore the extent to which AI tools contribute to making English language learning more interactive and engaging.

Options	Students Number	Percentage
Strongly Agree	1	2.70%
Agree	20	54.05%
Neutral	11	29.73%
Disagree	3	8.11%
Strongly Disagree	2	5.41%
Total	37	100%

Table 13: Making Learning English more Interactive and Engaging through AI Tools



Chapter Three: Methodology and Procedures

Figure 13: Making Learning English more Interactive and Engaging through AI Tools

The data revealed, a total of 56.75% of students (agree + strongly agree) expressed that AI tools make learning English more interactive and engaging. This reflects a strong consensus that AI tools usage is making English learning more interactive and engaging. In contrast, only a small fraction of the participants 13.52% disagreed and strongly disagreed, while 29.73%% remained neutral.

Question 14: AI tools increase my motivation to learn English.

This question aims to explore whether AI tools increase students 'motivation to learn English.

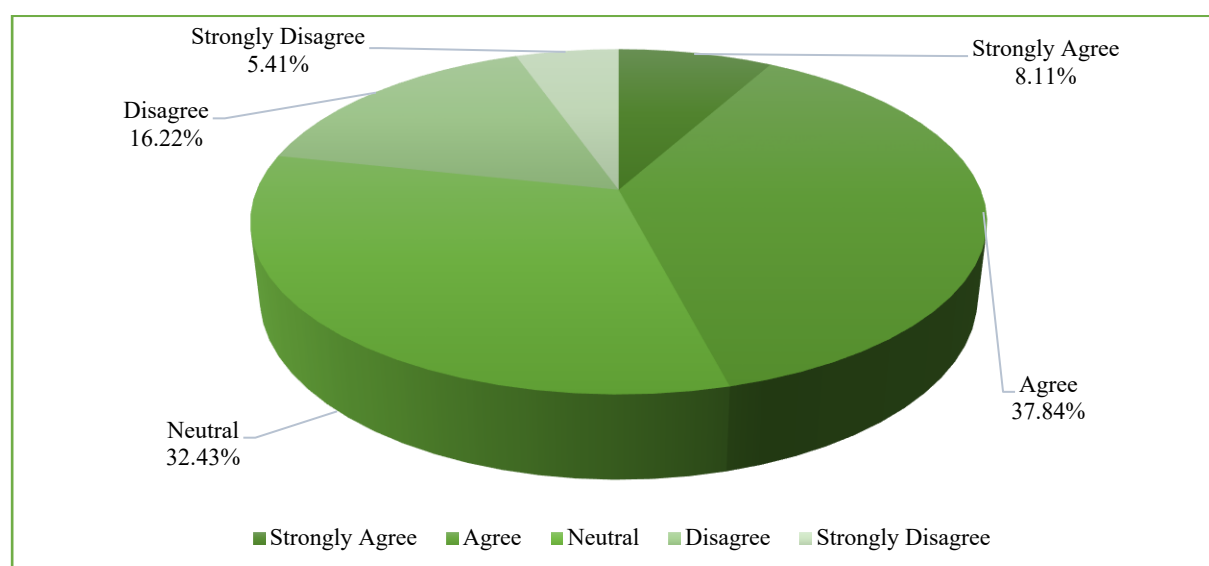


Figure14: The Increase in Students 'Motivation to Learn English through AI Tools

The data presented shows 45.95% of participants agreed or strongly agreed that AI tools increase their motivation to learn English. Meanwhile, only 21.63% (disagreed and strongly disagreed), and 32.43% remained neutral. These results strongly suggest that AI tools are a powerful factor in increasing students' motivation to learn English.

Section V: Challenges and Ethical Issues

Question 15: I rely too much on AI tools when doing my assignments

Chapter Three: Methodology and Procedures

This question aims to identify the students' heavy reliance on AI tools to do their assignments.

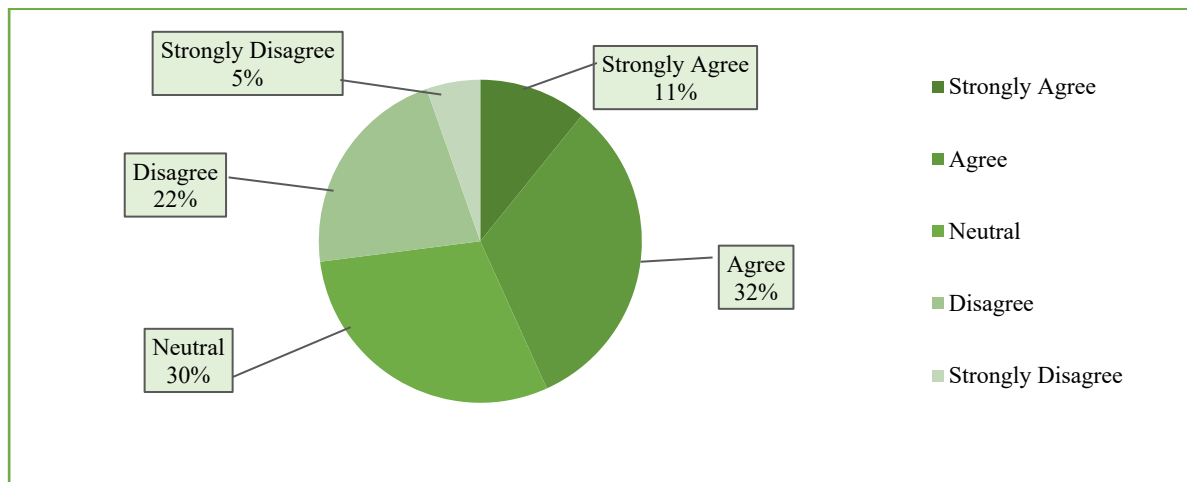


Figure 15: Students' Heavy Reliance on AI Tools to Do their Assignments

The results indicate that a significant number of students 43% (Agree + Strongly Agree) rely excessively on artificial intelligence, which threatens their critical thinking and communication skills. Only 27% disagreed with this statement, while 30% remained neutral. These results indicate the need for a balance between artificial intelligence and individual effort, as excessive reliance on artificial intelligence threatens the learner's autonomy and communication skills.

Question 16: AI tools may provide incorrect or misleading information.

This question aims to identify the probability of the incorrect or misleading information provided by AI tools.

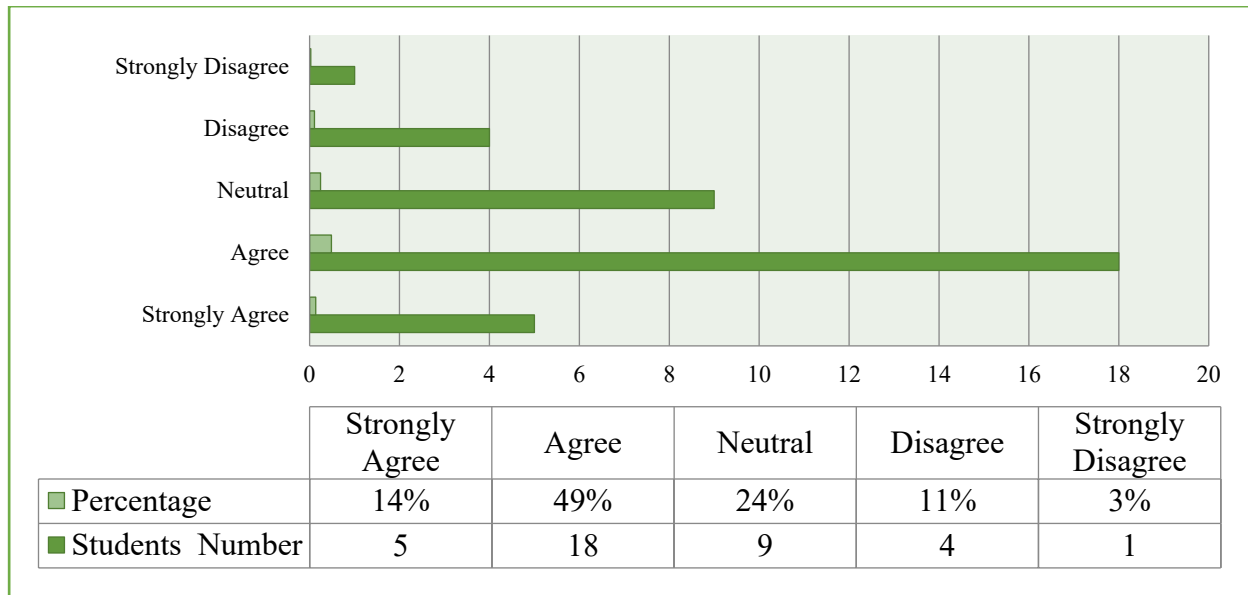


Figure 16: The Probability of the Incorrect or Misleading Information Provided by AI Tools

That data presented shows that a substantial percentage of respondents (63%) (Agree and Strongly agree) that AI tools usage reduces students' critical thinking skills. In contrast, 14 % of students (disagree and strongly disagree) and 24% remained neutral. This suggests that this group needs to be more aware of the importance of verifying content.

Question 17: Reducing Students' Critical Thinking Skills through AI tools usage

This question aims to investigate whether artificial intelligence tools reduce students' critical thinking.

Chapter Three: Methodology and Procedures

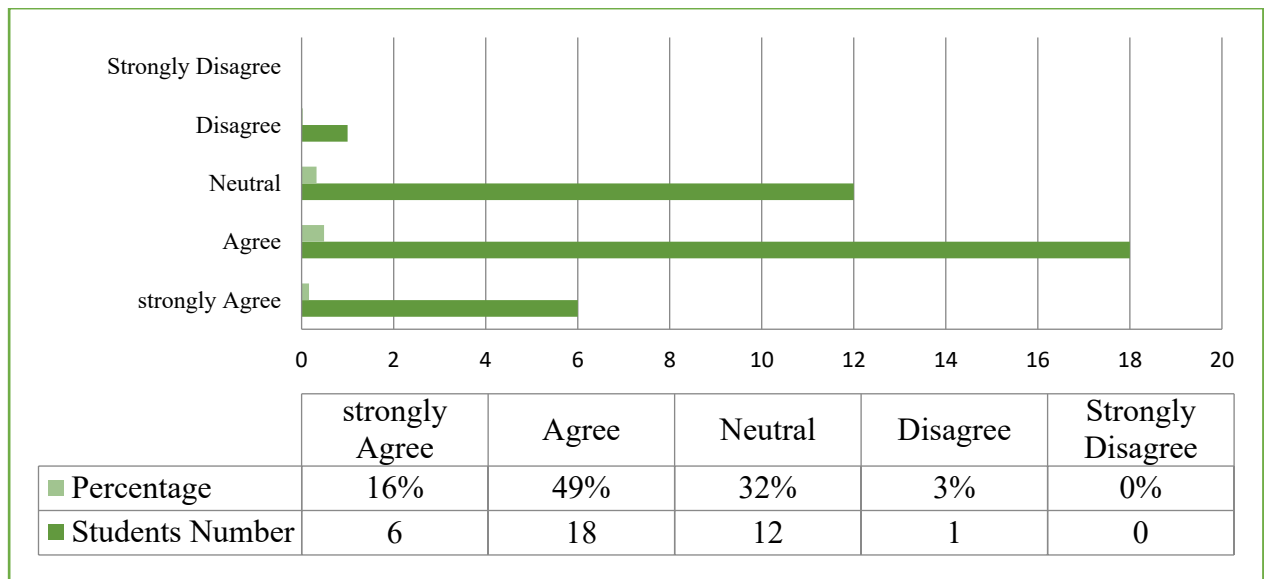


Figure 17: Reducing Students' Critical Thinking Skills through AI tools usage

The analysis shows that the majority of students (65%) (Agree or strongly agree) are aware of the potential for inaccurate information from AI tools. Only (3%) disagreed with this view and (0%) strongly disagree, while 32% remained neutral, suggesting that the dominant group is deeply concerned about the reduce of critical thinking when using AI tools.

Question 18: Some students misuse AI tools for academic cheating.

This question aims to explain the students' misuse of AI tools in academic cheating.

Table 18: Students' Misuse of AI Tools in Academic Cheating

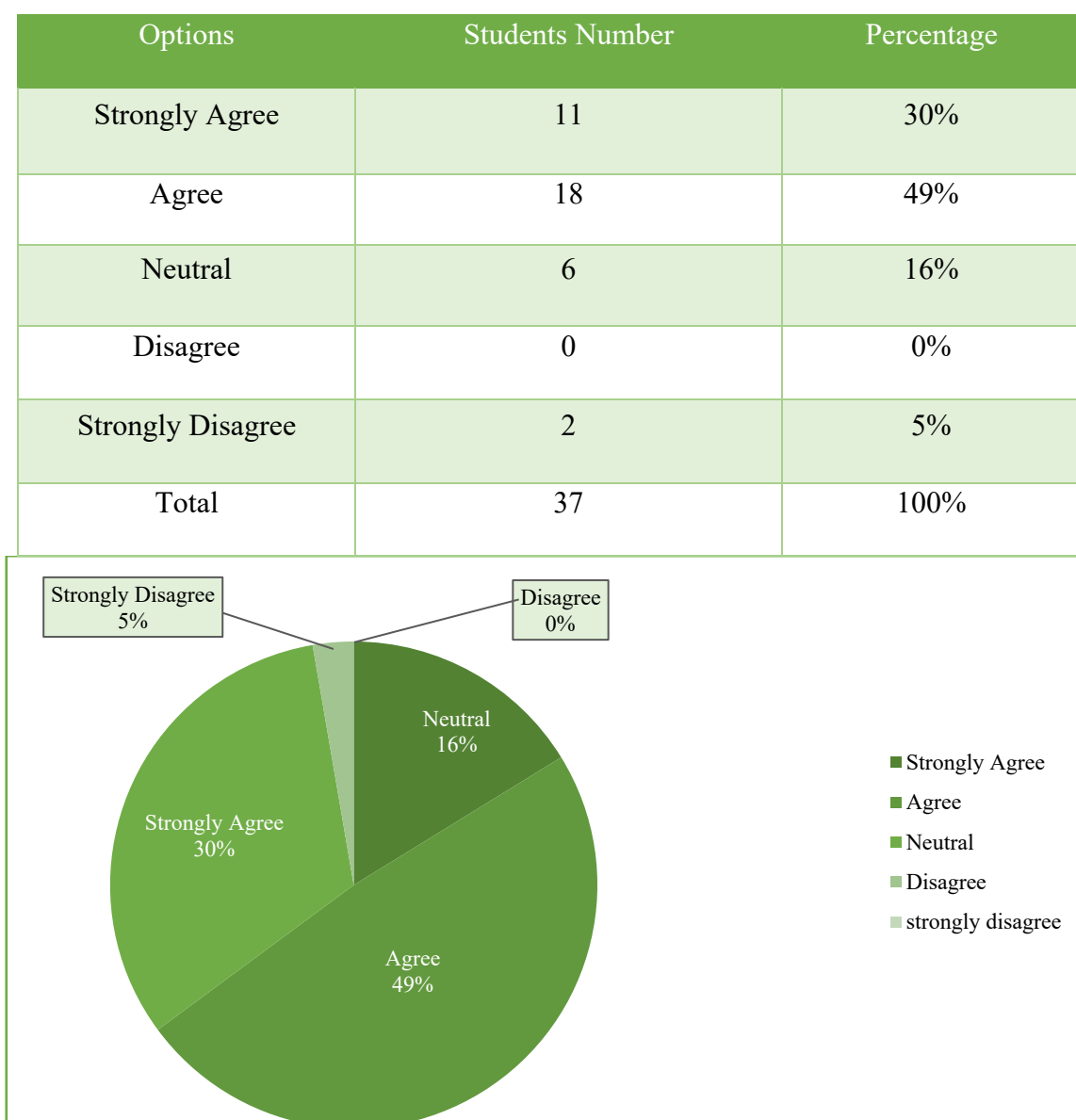


Figure 18: Students' Misuse of AI Tools in Academic Cheating

The data revealed, a total of (79%) of student (Agree or strongly agree) expressed the misuse of AI tools in academic cheating while 16% remained neutral. On the other hand, only a small fraction of the participants (5%) disagreed with complete consensus (0%) (Strongly disagree) on the misuse of AI tools in academic cheating. This justifies the collective awareness of the misuse of AI tools in academic cheating.

Section VI: Attitudes Toward AI Integration

Chapter Three: Methodology and Procedures

Question 19: AI tools should be integrated into English language teaching at university level.

This question aims to indicate the necessity of AI tools integration into English language teaching at the university level.

Table 19: The Integration of AI Tools into English Language Teaching at University Level

Options	Students Number	Percentage
Strongly Agree	1	2.70%
Agree	16	43.24%
Neutral	17	45.95%
Disagree	2	5.41%
Strongly Disagree	1	2.70%
Total	37	100%

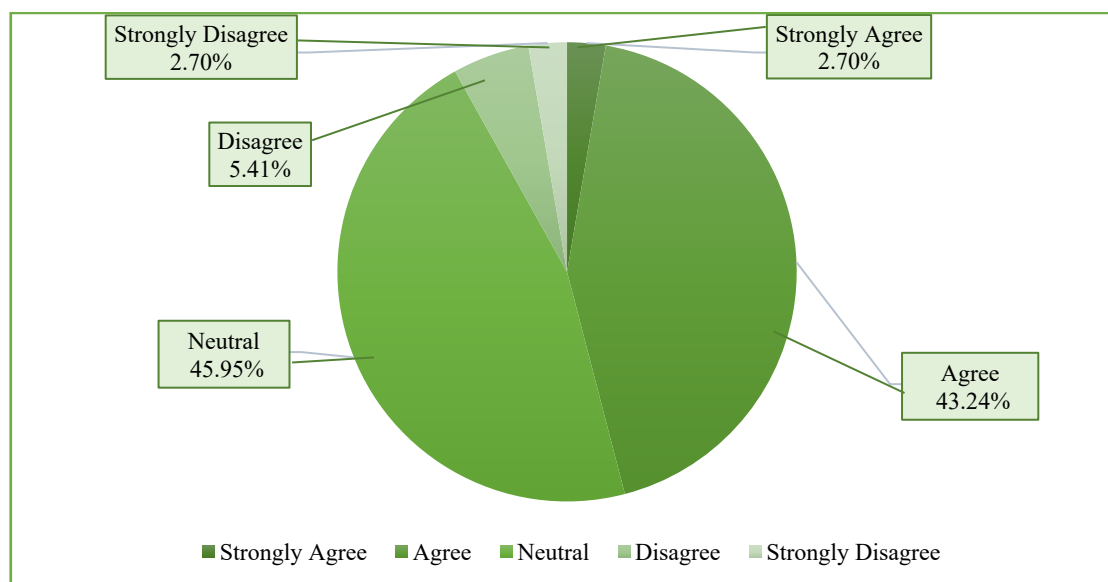


Figure 19: The Integration of AI Tools into English Language Teaching at University Level

The results indicate that a significant number of students 45.94% (Agree + Strongly Agree) expressed that AI tools should be integrated into English language teaching at university

Chapter Three: Methodology and Procedures

level, and 45.95% remained neutral while only 8.11% disagreed and strongly disagreed to some extent. These findings suggest that the integration of AI tools is necessary in English language teaching at university level.

Question 20: Teachers should guide students on how to use AI tools effectively.

This question aims to indicate the teacher's guidance on how students use AI tools effectively.

Table 20: Teacher's Guidance on How Students Use AI Tools Effectively

Options	Students Number	Percentage
Strongly Agree	11	29.73%
Agree	16	43.24%
Neutral	6	16.22%
Disagree	2	5.41%
Strongly Disagree	2	5.41%
Total	37	100%

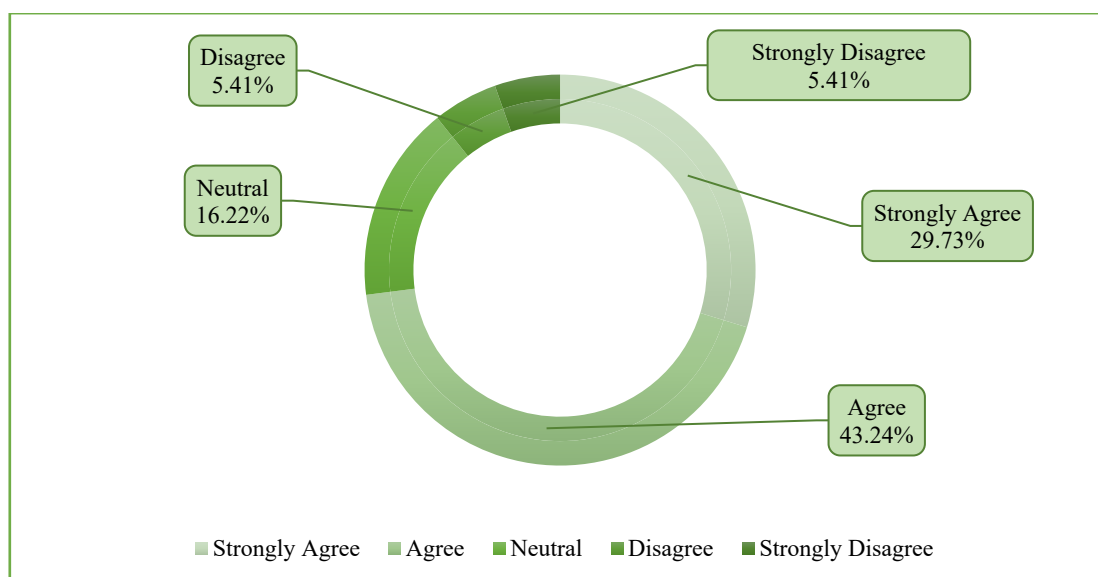


Figure 20: Teacher's Guidance on How Students Use AI Tools Effectively

The analysis reveals that 72.97% of students agreed or strongly agreed that they support the necessity for teachers to guide students on how to use AI tools effectively. Only 10.82% disagree and strongly disagreed with this statement, while 16.22% remained neutral. Overall, these findings highlight the crucial role of teachers as facilitators in guiding students on how to use AI tools effectively to ensure active interaction with educational content.

Section VII: Open-Ended Questions

Question 21: In your opinion, what are the main advantages of using AI tools in learning English?

This question aims to identify the main advantages of using AI tools in learning English?

Table 21: The Advantages of Using AI Tools in Learning English

Options	Students Number	Percentage
---------	-----------------	------------

Chapter Three: Methodology and Procedures

To learn new vocabulary	12	32.43%
To increase motivation	2	5.41%
To improve English skills	8	21.62%
To understand lessons better	3	8.11%
To switch from traditional learning to modern learning	5	13.51%
To practise any time	7	18.92%
Total	37	100%

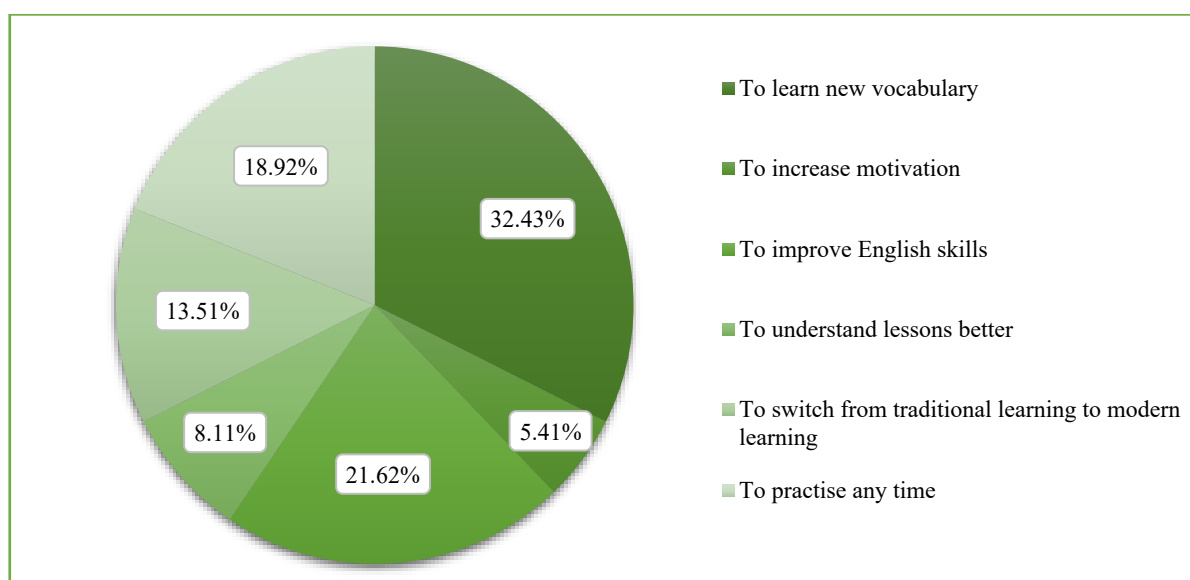


Figure 21: The Advantages of Using AI Tools in Learning English

The findings reveal that 32.43% of the participants reported AI tools beneficial for learning new vocabulary. Additionally, 21.62% expressed that AI tools usage improves their English skills. Meanwhile, 18.92% stated that AI tools usage helps them to practise any time. 13.51% argued that AI tools usage switches learning from traditional way to modern way. 8.11% of students find that AI tools help them understand English lessons better. Finally,

Chapter Three: Methodology and Procedures

5.41% indicated that AI tools usage increases students' motivation. These results reflect that AI tools usage positively affects learning English.

Question 22: In your opinion, what are the main challenges of using AI tools in learning English?

This question aims to identify the main challenges of using AI tools in learning English.

Table 22: The Challenges of Using AI Tools in Learning English

Options	Students Number	Percentage
Reducing students' creativity	2	5.41%
Giving incorrect information	10	27.03%
The heavy reliance on AI	15	40.54%
Reducing learning skills	4	10.81%
Reducing critical thinking	6	16.22%
Total	37	100%

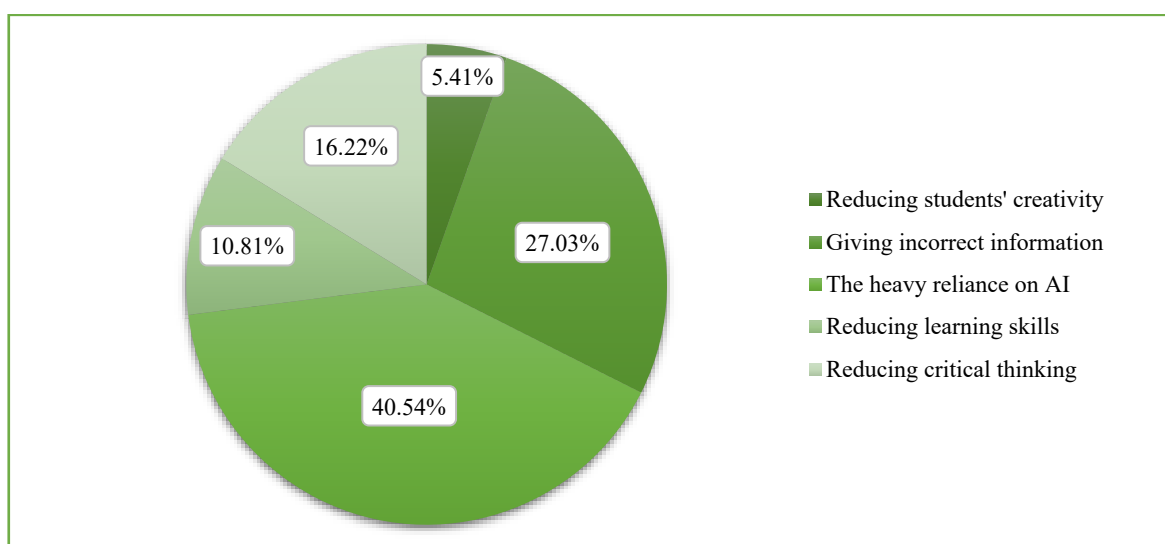


Figure 22: The Challenges of Using AI Tools in Learning English

Chapter Three: Methodology and Procedures

As shown, 40.54% of the students reported that heavy reliance on AI tools represents a major challenge for them to learn English. Additionally, 27.03% expressed that AI tools usage gives incorrect information. Meanwhile, 16.22% stated that AI tools usage reduces students' critical thinking skills, and 10.81% argued that AI tools usage reduces students' learning skills. Finally, 5.41% indicated that AI tools usage reduces students' creativity. These findings reflect that AI tools usage involves negative effects and significant challenges that may hinder English language learning.

3.5. Discussion of the findings

This subsection discusses the results of the research instruments in light of the proposed hypotheses. The study aimed to Explore the attitudes of English as a Foreign Language (EFL) students at the licence level towards Technology-Enhanced Language Learning in EFL Contexts using evidence from AI-based instruction. The analysis was guided by the following hypotheses:

1. It is hypothesized that AI-based instruction contributes to improving the academic performance and language proficiency of EFL students at the licence level by providing immediate feedback that enables them to understand their lessons better and improve the quality of their language production.
2. It is hypothesized that AI-based instruction positively increases students' motivation and active engagement in learning English by providing an personalised and interactive learning environment.
3. It is hypothesized that AI-based instruction contributes to enhancing learner autonomy among EFL students at the licence level by enabling them to identify and correct their own mistakes independently and develop their self-directed learning skills.
4. It is hypothesized that excessive and unguided use of AI tools may lead to certain challenges, such as reducing EFL students' critical and creative thinking and the potential for academic cheating.

A critical analysis of student survey responses revealed that the majority of EFL students at the Licence Level reported a significant improvement in their academic performance and language proficiency through AI-based instruction. 81.08% of respondents are familiar with using AI tools because AI interact with world, and 97.30% actually used them in English learning because AI has become a descriptive tool in education and language learning.

Chapter Three:Methodology and Procedures

Furthermore, 18.92% considered the possibility of practicing any time as one of the main advantages of using AI tools in learning English, as their advancement has resulted in several applications aiming at improving Foreign Language Teaching and Learning. Additionally, 78% identifying ChatGPT as their most frequently used AI tool, which is a powerful AI tool that helps them in generating ideas, simplifying complex topics, summarizing lengthy documents. 57% of them identifying also Google Translate as their used AI tool, which uses AI-generated translation models to analyze and comprehend text with incremental accuracy. Google Translate enable students to interpret foreign books and develop bilingual skills. Furthermore, 16% choose Grammarly as their used AI tool, which provides real-time grammar, punctuation, spelling, and stylistic feedback as an AI-assisted writing tool, which makes it easy to use and not as intimidating for a novice writer. 5% of students AI writing assistants as their used AI tool. AI-powered writing tools have transformed the way EFL students prepare papers. These tools offer feedback, grammar corrections, style suggestions, and personalized writing opportunities that help students improve at their own pace. In addition, 62.16% stated that AI tools is an effective aid for expanding their vocabulary, Tools like Grammarly and Pro Writing Aid offer advanced suggestions related to word choice, tone, and clarity. Through suggesting different phrasing and mitigating the risk of repetition - they encourage students to better develop their style, expanding their vocabulary. Along with, 13.51% considered the switch of learning from traditional way to modern way as one of the main benefits of AI tools usage in learning English, the traditional EFL training has frequently resulted in inflexible learning environments that fail to meet the different needs of each student but the rise of artificial intelligence has introduced dynamic, customized, and flexible learning opportunities that let students foster their writing by tools of immediate feedback and AI-generated recommendations. 76% of students reported that they use translation a lot, which uses to analyze and comprehend text with incremental accuracy. Google Translate use AI-generated translation

Chapter Three: Methodology and Procedures

models to analyze and comprehend text with incremental accuracy. Google Translate enable students to interpret foreign books and develop bilingual skills. Additionally, 54% use grammar checking as a mean of learning and avoiding mistakes while 16 % use writing assistance to write a better and easier piece of work. These tools can substantially enhance learners' writing abilities, particularly in terms of grammar accuracy, vocabulary enrichment, and style refinement. Students have reported high levels of satisfaction with AI features that help them correct grammatical errors, improve word choice, and enhance overall writing style, suggesting that AI-assisted writing can play a significant role in developing EFL learners' written performance. 41% stated that they use AI for generating ideas while 16 % of them use it for writing assistance, AI-powered writing tools such writing assistance have transformed the way EFL students prepare papers. As such, they can augment existing pedagogical practices and create new approaches to teaching writing. This confirms hypothesis 1, demonstrating that AI-based instruction contributes to improving the academic performance and language proficiency of EFL students at the licence level by providing immediate feedback that enables them to understand their lessons better and improve the quality of their language production.

The findings also provided strong support for hypothesis 2 which AI-based instruction positively increases students' motivation and active engagement in learning English by providing an personalised and interactive learning environment. 56.72% of students expressed that AI tools makes learning more interactive and engaging, these tools improve student engagement by offering an interactive process that simultaneously allows students to generate ideas and provide feedback to peers and allowing them to practice real- life speaking tasks and situations, making learning more engaging and interesting. The incorporation of online quiz games into English classes was also seen favorably by these students, who expressed feeling more motivated and having more optimistic attitudes. Additionally, 45.95% stated that AI tools increase their motivation to learn English. In the context of language learning, AI presents

Chapter Three: Methodology and Procedures

opportunities to increase learners' initiative and self-motivation such as the personalized learning experience with the help of artificial intelligence enhances and deepens student engagement and makes learning more meaningful. Tailored learning environments also improve engagement among language learners.

Hypothesis 3 was also confirmed which AI-based instruction contributes to enhancing learner autonomy among EFL students at the licence level by enabling them to identify and correct their own mistakes independently and develop their self-directed learning skills. While 81.08% asserted that AI tools help them understand English lessons better. 8.11% considered the help for understand English lessons in better way is one of the main advantages of using AI tools in learning English. AI tools like Grammarly and ChatGPT provide immediate feedback, adaptive learning and supporting student autonomy.

Hypothesis 4 was strongly supported by data showing that the excessive and unguided use of AI tools may lead to certain challenges, such as reducing EFL students' critical and creative thinking and the potential for academic cheating. 79% of students stated that the misuse of AI tools raises the possibility of academic cheating and 65% of them are aware of the potential for inaccurate information from AI tools. One of the major disadvantages is that artificial intelligence feedback can sometimes simply be inaccurate. .One of the major disadvantages is that artificial intelligence feedback can sometimes simply be inaccurate, AI-based text generators such as ChatGPT, with their ability to quickly produce coherent essays and comments in response to prompts, raises issues about students submitting AI-generated writing as their own. 72.97% of students argued that they support the necessity for teachers to guide students on how to use AI tools effectively. Additionally, 72.97% of students argued that they support the necessity for teachers to guide students on how to use AI tools effectively. it is necessary for educators to ensure that students use AI critically and mitigate between technology and human education as well as self-reflection. The majority of students reported

Chapter Three: Methodology and Procedures

that heavy reliance on AI tools represents a major challenge for them to learn English, as it reduces their learning skills, critical thinking skills, and creativity. Concerns have also been raised about learners' over-reliance on AI-generated content, which could weaken their learning and writing abilities. Furthermore, overreliance on AI feedback could result to weak critical thinking skills as students can become accustomed to automated corrections rather than spend time critically reflecting on their own mistakes.

Conclusion

At the conclusion of this chapter, the methodology and procedures adopted in this study were discussed, through a presentation of the research design, the study population and the sample, with a focus on the sample of participating students. The data collection tools were also discussed, particularly the student questionnaire, in terms of its description and the method of analyzing its results. These methodological procedures helped to collect the data necessary to study the effectiveness of AI-based learning in improving English as a Foreign Language (EFL) learning of licence students in the English Department at the University of Ghardaïa. The findings regarding English language learners' perceptions of AI-based instruction in improving English as a Foreign Language (EFL) learning of licence students in the English Department at the University of Ghardaïa were presented and analyzed. The results revealed numerous positive aspects associated with the use of AI tools in English language learning, alongside certain challenges linked to the excessive and unguided use of these tools. The discussion of the results also helped to interpret the data and relate it to the theoretical framework and previous studies.

General Conclusion

General Conclusion

This dissertation set out to explore the role of AI-based instruction in improving English as a Foreign Language (EFL) learning of licence students in the English Department at the University of Ghardaïa. The research problem was rooted in the use of AI-based instruction in the learning of English as a foreign language and the questions it raises regarding its educational effectiveness in enhancing students' language learning. More specifically, the study seeks to determine whether this type of instruction actually contributes to improve language proficiency, learners' motivation and engagement, or whether it may lead to heavy reliance on AI tools and weaken certain English language learning skills, critical thinking and creativity.

To address this issue, the study raises the following research questions:

1. To what extent does AI-based instruction contribute to improving the academic performance and language proficiency of EFL students at the licence level?
2. How does AI-based instruction affect EFL students' motivation and active engagement in learning English as a foreign language?
3. To what extent does AI-based instruction contribute to enhancing learner autonomy and developing self-directed learning skills among EFL students at the licence level?
4. What are the main challenges resulting from the excessive and unguided use of AI tools in English language learning among EFL students at the licence level?

Based on these questions, the following hypotheses were formulated:

1. It is hypothesized that AI-based instruction contributes to improving the academic performance and language proficiency of EFL students at the licence level by providing immediate feedback that enables them to understand their lessons better and improve the quality of their language production.

2. It is hypothesized that AI-based instruction positively increases students' motivation and active engagement in learning English by providing an personalised and interactive learning environment.
3. It is hypothesized that AI-based instruction contributes to enhancing learner autonomy among EFL students at the licence level by enabling them to identify and correct their own mistakes independently and develop their self-directed learning skills.
4. It is hypothesized that excessive and unguided use of AI tools may lead to certain challenges, such as reducing EFL students' critical and creative thinking and the potential for academic cheating.

Through a theoretical and practical investigation employing a mixed-methods approach and a comprehensive questionnaire for students at the University of Ghardaïa, this study has provided sufficient ground to confirm the first hypothesis, establishing that the integration of AI-based instruction significantly improves students' academic performance and language proficiency. The results also confirmed the second hypothesis, as the data revealed that the integration of AI tools increases students' motivation and active engagement by providing interactive and personalized learning environments. Regarding the third hypothesis, the study demonstrated that AI-based instruction significantly promotes learner autonomy and encourages self-editing skills thanks to immediate feedback that allows students to identify and correct their own mistakes independently. The results also confirmed the fourth hypothesis, the study demonstrated that the integration of AI-based instruction significantly improves students' English language learning skills, particularly in terms of enhancing linguistic accuracy. Conversely, the fifth and sixth hypotheses regarding risks were confirmed the results showed that the unguided use of AI increases the likelihood of academic cheating, and that heavy reliance actually leads to a decline in English language learning skills, critical thinking and creativity in the long term. These findings highlight the dual nature of AI as a powerful

General Conclusion

‘Mediational scaffold’ that serves creative education if framed within technological models such as SAMR and PICRAT, but remains a threat to authenticity in the absence of educational supervision.

In conclusion, this study emphasizes the critical importance of integrating AI-based instruction into English as a Foreign Language (EFL) contexts to provide students with interactive and personalized experiences. The study highlights the powerful role of AI-based instruction in enhancing academic performance, language proficiency, learner autonomy and self-editing skills by providing immediate feedback and continuous support. It is therefore recommended that educational institutions promote and organize regular training programmes on the responsible use of AI and ‘digital AI literacy’, designed to meet the evolving needs of students. These findings can serve as a reference for English language teachers and decision-makers seeking to create a more student-centered and technologically advanced learning environment.

Recommendations

Based on the study's findings regarding the role of AI-based instruction in enhancing the English language learning for EFL students at the licence level at the University of Ghardaia, the study recommends the following:

1. Encouraging the use of educational AI tools in the teaching of English to licence students at the University of Ghardaia, such as writing correction and language assistance applications, given their role in enhancing the learning experience and increasing student engagement.
2. Provide training programmes and workshops for teachers and students to develop their skills in the correct and effective academic use of educational AI applications.
3. Guiding students towards the responsible and ethical use of AI tools, emphasising the need to employ them as aids to learning and research, rather than as a substitute for personal thinking or individual academic effort.
4. Encouraging teachers to use AI tools in a balanced manner that takes into account learning objectives and students' needs, whilst maintaining the teacher's role as a key element in guiding the educational process.
5. Strengthen the digital infrastructure at the University of Ghardaia by providing modern resources and technologies that support the effective and systematic use of AI tools in English language teaching.
6. Work to address the challenges associated with the use of artificial intelligence in education, particularly regarding over-reliance on these tools, whilst encouraging students to verify the accuracy of information provided by AI tools.

Reference List

Reference List

- Alexander, R. .. (2008). *Essays on pedagogy*. Routledge.
- Aljuaid, H. (2024). *The impact of artificial intelligence tools on academic writing instruction in higher education: a systematic review*. Retrieved from . <https://doi.org/10.31235/osf.io/ph24v>
- Al-Tkahayneh, K. M. (2023). The advantages and disadvantages of using artificial intelligence in education. *Journal of Educational and Social Research*, 13(4) , 105–117.
- Awuah, W. A.-R. (2024). Empowering health care consumers & understanding patients’ perspectives on AI integration in oncology and surgery: A perspective,” *Health Science Reports*,” <https://doi.org/10.1002/hsr2.2268>. 7 (7), 1-5.
- Barrot, J. (2023). Using ChatGPT for second language writing: Pitfalls and potentials. *Assessing Writing* .
- Barrot, J. (july 2023). Using ChatGPT for second language writing: Pitfalls and potentials.
- Baskara, R. &. (2023). Exploring the implications of ChatGPT for language learning in higher education. *Indonesian Journal of English Language Teaching and Applied Linguistics*, 7(2),. 343–358.
- Bhosale, M. P. (2020). dvantages and disadvantages of artificial intelligence. *Aayushi International Interdisciplinary Research Journal*, 77, , 227-230.
- Bhutoria, A. (2022,). “*Personalized education and artificial intelligence in the United States, China, and India: A systematic review using a human-in-the-loop model*,” *Comput. Educ.: Artif. Intell.*, vol. 3, Art. no. 100068, doi: 10.1016/j.caeai.2022.10006. China, and India.
- Bissessar, C. (2023). “To use or not to use ChatGPT and assistive artificial intelligence tools in higher education institutions? The modern-day conundrum—students’ and faculty’s perspectives,” *Equity in Education & Society*. <http://dx.doi.org/10.1177/27526461231215083> , 1 (1), 1-13.
- Bonner, E. L. (2023). Large language model-based artificial intelligence in the language classroom: Practical ideas for teaching. *Teaching English with Technology*, 23(1). <https://doi.org/10.2341>.
- Bostrom, N. (2014). *Superintelligence: Paths, dangers, strategies*. Oxford University Press.
- Bown, V. &. (2010). Affect in a self-regulatory framework for language learning. *System*, 38(3),DOI: <https://doi.org/10.1016/j.system.2010.03.016>. 420-431.
- Budiyono, H. M. (2025). Exploring long-term impact of AI writing tools on independent writing skills: A case study of Indonesian language education students. . *International Journal of Information and*
- Budiyono, H., Marzuki, M., Pudjaningsih, W., Prastio, B., & Maulidina, A. (2025). *Exploring long-term impact of AI writing tools on independent writing skills: Education Technology*, 15(5). <https://www.ijet.org/show> , 1003-1013.
- Charisi, V. (2026). *Artificial Intelligence in Classrooms: Pedagogical Dimensions*. Briefing requested by the CULT committee, Policy Department for Citizens, Equality and Culture. , European Parliament. PE 784.574.
- Chelliah, J. (2017). Will artificial intelligence usurp white-collar jobs? *Human Resource Management International Digest*, 25(3), <https://doi.org/10.1108/HRMID-11-2016-0152>. 1-3.

- CHEN, Q. G. (2019). Intelligent feedback generation for Chinese composition writing based on automatic evaluation. *IEEE Access*, 7, 1368-1378.
- Cheng, S.-M. &.-Y. (2014). Technologies and applications of artificial intelligence: 19th International Conference, TAAI 2014, Taipei, Taiwan, November 21–23, 2014, Proceedings. Springer.
- CHTATOU, M. (2024). AI in higher education: Advantages and disadvantages. *International Journal of Applied Linguistics & English Literature*, 13(2). <https://doi.org/10.7575/aiac.ijalel.v.13n.2p.210> , 210-219.
- CHTATOU, M. (2024). in higher education: Advantages and disadvantages. *International Journal of Applied Linguistics & English Literature*, 13(2), <https://doi.org/10.7575/aiac.ijalel.v.13n.2p.210> . 210-219.
- Conteh, M. (January 2014). *The multilingual turn in languages education: Opportunities and challenges*.
- Council of Europe.(2018). Common European Framework of Reference for Languages: Learning, teaching, assessment – Companion volume. Strasbourg: Council of Europe Publishing.
<https://www.coe.int/en/web/common-european-framework-reference-languages>. (n.d.).
- Dasol Yoon, D. A. (2024). *Improving robustness of electron ptychography by bayesian optimization of tilt and thickness*. *Microscopy and Microanalysis*, 30(Supplement_1),.
- ECODAL, U. P. (2024). Retrieved 2024, from Glossary term: Agency:
<https://www.upf.edu/en/web/ecodal/glosario-agencia>
- Ergen, M. (2019). What is artificial intelligence? Technical considerations and future perception. <https://doi.org/10.14744/AnatolJCardiol.2019.79091>. *Anatol*, 22 , 5–7.
- F. Balabdaoui, N. D.-D. (2024). “A survey on students’ use of AI at a technical university,” *Discover Education*, . <https://doi.org/10.1007/s44217-024-00136-4> , 3 (01), 51-65.
- Fan, y. (2025). Beware of metacognitive laziness: Effects of generative artificial intelligence on learning motivation, processes, and performance. *British Journal of Educational Technology* .
- Galante, E. P. (January 2017). Plurilingualism and Agency in language Education. *The role of dramatic action-oriented tasks* .
- GAUDREAU, D. &. (2020). Educating complexity: Addressing the pedagogical relevance of artificial intelligence applications in foreign language teaching and learning. *Journal of Educational Technology*, 45(3), , 321-335.
- Hooper, R. B. “Automation, artificial intelligence and future skills needs: An Irish perspective,” *European Journal of Training and Development*, . <https://doi.org/10.1108/EJTD-03-2023-0045> , 47 (10), 163-185.
- HUI, S. &. (2019). Leveraging artificial intelligence to enhance teaching effectiveness. *Educational Research Quarterly*, 42(3),. 301-317.
- Jiajia Eve LIU, Z. Q. (n.d.). Integrating GenAI with genre-based pedagogy and the PAA model in a college writing course: Enhancing critical engagement in an AI-mediated learning ecology.
- JIANG, J. &. (2020). The role of artificial intelligence in education: A review. *Journal of Educational Technology*, 17(4), , 226-234.

- Kasneci, E. S. (2023). ChatGPT for good? On opportunities and challenges of large language models for education. *Learning and Individual Differences*. <https://doi.org/10.1016/j.lindif.2023.102247>.
- Kerrouche, S., & Nabi, N. (2025). *The Role Of Artificial Intelligence In Promoting Efl Learners's Writing Skills : Case Of 2nd Year Efl Learners At Tlemcen University*. universit  Abou Bekr Belkaid - Tlemcen.
- King, M. R. (2022). The future of AI in medicine: A perspective from a chatbot. *Annals of Biomedical Engineering*, 51(2). <https://doi.org/10.1007/s10237-022-01991-9>, 291–295.
- Koedinger, A. M. (2012). "Automated Student Model Improvement." In *Educational Data Mining, Proceedings of the 5th International Conference*, . http://educationaldatamining.org/EDM2012/uploads/procs/Full_Papers/edm2012_full_10.pdf. 17–24.
- LABARTHE, H. &. (2016). Artificial intelligence and adaptive systems in education: A systematic literature review. *Journal of Educational Technology & Society*, 19(2), , 121-139.
- LABARTHE, H. &. (2016). Artificial intelligence and adaptive systems in education: A systematic literature review. . *Journal of Educational Technology & Society*, 19(2), , 121-139.
- Lee, A. V. (2024). Prompt Engineering for Knowledge Creation: Using Chain-of-Thought to Support Students' Improvable Ideas. 1446-1461.
- Liu, J. E. (2026). Integrating GenAI with genre-based pedagogy and the PAA model in a college writing course: Enhancing critical engagement in an AI-mediated learning ecology. *Linguistics and Education*, 92, Article 101487. <https://doi.org/10.1016/j.linged.2025.101487> .
- Luckin, R. H. (2016). • *Intelligence unleashed: An argument for AI in education*. <https://discovery.ucl.ac.uk/id/eprint/1475756>. UCL Institute of Education.
- Mahmud, F. (2023). *Investigating EFL students' writing skills through artificial intelligence: Wordtune application as a tool*. *Journal of Language Teaching and Research*, 14(5), 1395–1404. Retrieved from <https://doi.org/10.17507/jltr.1405.28>
- Mamatova, S. &. (2023). The role of AI in teaching advantages, disadvantages, and future implications. *Eurasian Scientific Herald*, 21,. 8-12.
- Mohammad hmoud, A. S. (2024). AIED Bloom's Taxonomy: A Proposed Model for Enhancing Educational Efficiency and Effectiveness in the Artificial Intelligence Era. *An-Najah National University, Palestine* .
- Pliakos, K., Joo, S.-H., Park, J., Cornillie, F., Vens, C., & Van den Noortgate, W. (2019). Integrating machine learning into item response theory for addressing the cold start problem in Adaptive Learning Systems. *Comput. Educ.* 137, 91–103.
- Poola, I. (2023). Overcoming ChatGPT's inaccuracies with pre-trained AI prompt engineering sequencing process. . *International Journal of Technology and Emerging Sciences (IJTES)*, 3(3), , 16–19.
- R. Swain, V. T. (2023). "A comparison of the views of experts and the public on automated vehicles technologies and societal implications," *Technology in Society*, <https://doi.org/10.1016/j.techsoc.2023.102288>. 16 (3), 1-16.
- Ranalli, J. (2021). L2 student engagement with automated feedback on writing: Potential for learning from error correction suggestions. *Language Learning & Technology*, 26(1). 1–25.

- Rose, D. &. (2012). *Learning to Write, Reading to Learn: Genre, Knowledge and Pedagogy in the Sydney School*. Equinox Publishing.
- S. G. Sutton, V. A. (2023). "An extension of the theory of technology dominance: Capturing the underlying causal complexity," *International Journal of Accounting Information Systems*, . <https://doi.org/10.1016/j.accinf.2023.100626> , 50 (2), 1-20.
- Salas-Pilco, S. Z. (2022). "Artificial Intelligence and Learning Analytics in Teacher Education: A Systematic Review." *Education Sciences* 12 (8): 569. <https://doi.org/10.3390/educsci12080569>.
- Sebrou, s. C. (2025). *Investigating EFL Learners' attitudes towards using Artificial Intelligence to enhance their writing skills*.
- Sehlaoui, F. (2024). *Integrating AI in foreign language teaching and learning: Learner autonomy and tool utilization in an Algerian university*.
- Sehlaoui, F. Z. (2024). Integrating AI in Foreign Language Teaching and Learning: Learner Autonomy and Tool Utilization in an Algerian University. *Intégrer l'IA dans l'enseignement et l'apprentissage des langues étrangères : autonomie de l'apprenant et utilisation des outils dans une université algérienne* , 13, 116-139.
- Selim, A. (2024). *The transformative impact of ai-powered tools on academic writing: perspectives of efl university students*. *International Journal of English Linguistics*, 14(1), 14. Retrieved from <https://doi.org/10.5539/ijel.v14n1p14>
- Selvi, B. (April 2025). A Study on Artificial Intelligence Assisted Language Learning Tools. • *Journal of History School* 18(75) , 970-999Authors.
- SMITH, A. J. (2021). Harnessing the power of artificial intelligence in education: Opportunities and challenges. *Educational Technology Research and Development*, 69(5),. 1975-1995.
- Tartuk, M. ((2023)). Metaphorical perceptions of middle school students regarding the concept of artificial intelligence. *International Journal of Education & Literacy Studies*,. <http://dx.doi.org/10.7575/aiac.ijels.v.> , 11(2), 108–116.
- Ula, M. B. (2023). To generate or stop generating response': Exploring EFL teachers' perspectives on ChatGPT in English language teaching in Thailand. *Learning: Research and Practice*, 9(20). <https://doi.org/10.1080/23735082.2023.2257252> . 168–182.
- VANLEHN, K. L. (n.d.). The Andes physics tutoring system: Lessons learned. *International Journal of Artificial. Intelligence in Education*, 17(4). , 373-388.
- VILLANI, L. (2018). The impact of AI on education. *Educational Technology Research and Development*, 66(5),. 1123-1139.
- Wale, C. (2024). Integrating AI in language classrooms: Advancing writing skills in EFL education. *Innovations in Language Teaching*, 29(1), . 55-72.
- Werquin, P. (2009). *Reconnaître l'apprentissage non formel et informel. Résultats, politiques et pratiques*. OCDE. www.cicic.ca/docs/oecd/rnfil.fr.pdf. Paris.
- Williamson, B. (2023). The social life of AI in education. *International Journal of Artificial Intelligence in Education* , <https://doi.org/10.1007/s40593->

Appendices

Students' Questionnaire

Dear Student,

This questionnaire is part of a Master's research entitled:

“Technology-Enhanced Language Learning in EFL Contexts: Evidence from AI-Based Instruction at the Licence Level at the University of Ghardaia.”

It aims to explore students' perceptions regarding the use of technology and Artificial Intelligence AI tools in learning English as a Foreign Language EFL the case of licence students at the university of Ghardaia.

Your responses are anonymous and will be used for academic purposes only.

Thank you for your participation.

Section One: Personal Information

1. Gender?

☐ Male ☐ Female

2. Year of Study?

☐ L1 ☐ L2 ☐ L3

3. English Proficiency Level?

☐ Beginner ☐ Intermediate ☐ Advanced

Section Two: Use of Technology and AI

4. Do you use technological tools in learning English?

☐ Yes ☐ No

5. How often do you use technology in your English learning?

☐ Very often ☐ Often ☐ Sometimes ☐ Rarely ☐ Never

6. Are you familiar with AI tools used in education?

☐ Yes ☐ No

7. How often do you use AI tools for learning English?

☐ Very often ☐ Often ☐ Sometimes ☐ Rarely ☐ Never

Section Three: Use of AI Tools

8. Which AI tools do you use? (You can choose more than one)

☐ ChatGPT

☐ Grammarly

☐ Google Translate

☐ AI writing assistants

☐ I do not use AI tools

☐ Other:

9. How do you mainly use AI tools? (You can choose more than one)

☐ Writing assistance

☐ Translation

☐ Grammar checking

☐ Understanding lessons

☐ Generating ideas

☐ I do not use AI tools

Section Four: Perceived Benefits

10. AI tools help me understand English lessons better.

☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

11. AI tools improve my writing skills.

☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

12. AI tools help me expand my vocabulary.

☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

13. AI tools make learning English more interactive and engaging.

☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

14. AI tools increase my motivation to learn English.

☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

Section Five: Challenges and Ethical Issues

15. I rely too much on AI tools when doing my assignments.

☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

16. AI tools may provide incorrect or misleading information.

☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

17. Using AI tools may reduce students' critical thinking skills.

☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

18. Some students misuse AI tools for academic cheating.

☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

Section Six: Attitudes Toward AI Integration

19. AI tools should be integrated into English language teaching at university level.

☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

20. Teachers should guide students on how to use AI tools effectively.

☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

Section Seven: Open Question

21. In your opinion, what are the main advantages of using AI tools

in learning English?

.....

.....

.....

.....

.....

.....

21. In your opinion, what are the main challenges of using AI tools

in learning English?

تهدف هذه الدراسة الى ابراز دور التعليم القائم على الذكاء الاصطناعي في تحسين تعلم اللغة الإنجليزية كلغة أجنبية، مع التركيز على مواقف طلاب اللغة الإنجليزية كلغة أجنبية في مرحلة الليسانس بجامعة غرداية. ومع دمج أدوات الذكاء الاصطناعي في عملية التدريس، أصبحت هذه الأدوات أساسية لتعزيز تعلم اللغة ودعم طلاب اللغة الإنجليزية كلغة أجنبية داخل البيئة التعليمية وخارجها. ومع ذلك، لا يزال العديد من طلاب اللغة الإنجليزية كلغة أجنبية يواجهون تحديات تتعلق بالمشاركة النشطة، وإتقان اللغة، والكفاءة اللغوية، والتعلم الذاتي المستقل. اعتمدت الدراسة منهج دراسة الحالة، كما تبنت مقارنة البحث المختلط، وذلك من خلال توزيع استبيانات على طلبة اللغة الانجليزية من مستوى الليسانس.

اظهرت النتائج أن معظم متعلمي اللغة الإنجليزية كلغة أجنبية عبّروا عن مواقف إيجابية اتجاه التعليم القائم على الذكاء الاصطناعي، حيث أدركوا دورها الفعال في توفير بيئة تعلم مرنة وتفاعلية، وتحسين الكفاءة اللغوية للطلبة في تعلم اللغة الانجليزية، وتعزيز دافعيتهم ومشاركتهم الفعالة، وتنمية استقلاليتهم. ومع ذلك، تم تسجيل بعض التحديات المترتبة عن استخدام أدوات الذكاء الاصطناعي، مثل الاعتماد المفرط على الذكاء الاصطناعي في انجاز الواجبات، وضعف التفكير النقدي والابداعي، والغش الأكاديمي. وبناء على هذه النتائج، توصي الدراسة بدمج ممارسات التدريس القائمة على الذكاء الاصطناعي في تدريس اللغة الإنجليزية كلغة أجنبية لخلق بيئات تعليمية أكثر فعالية وإبداعية وتفاعلية مع الحفاظ على القيم الأخلاقية والتوجيه البشري.

الكلمات المفتاحية: التعليم القائم على الذكاء الاصطناعي، الذكاء الاصطناعي، طلاب اللغة الإنجليزية كلغة أجنبية، الكفاءة اللغوية، إتقان اللغة، التعلم الذاتي.