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**Investigating the Potential Applications of Technologies, such as Chatbots  
and Language Processing Algorithms, in EFL Teaching and Learning**

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*The Case Study of 3rd Year LMD, Naama University Centre*

**Dissertation Submitted to the Department of English as a Partial Fulfilment of  
the Requirement for the Degree of Master in Linguistics**

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# Statement of Originality

We, Lairedj Meriem and Achour Rabab, hereby declare that our master thesis entitled, “Current Insights of Artificial Intelligence in EFL Instruction: Investigating the Potential Applications of Technologies, such as Chatbots and Language Processing Algorithms, in EFL Teaching and Learning” is entirely our own work and that we have written it in our own words, it contains no material that has been submitted previously, for the award of any other academic degree or diploma except where otherwise indicated. We also confirm that the present work contains no plagiarism and that any information taken from published or unpublished sources has been acknowledged.

## Dedication

This dissertation is a heartfelt tribute to all the cherished people in my life, each holding a unique place in my heart.

To my gentle anchor and eternal light—*my beloved mother*, whose unwavering love and kindness have been my constant source of comfort. To my steadfast pillar and strong guide—*my father*, whose wisdom and strength have shaped my path. To them who have supported and guided me throughout my journey, I owe my deepest gratitude.

To my dear siblings, the tapestry of my life, you are the vibrant threads that add colour and depth to every moment. From our shared laughter to the silent understanding between us, your presence is a constant source of comfort and joy.

This work is dedicated to the dear friends I met during my academic journey, especially my dear partner *Rabab*, the constant support, the shared laughter, and the countless memories have made this experience truly memorable. Thank you for being my companion, confidant, and source of inspiration.

Lairedj Meriem

## Dedication

I dedicate this work to all the wonderful people in my life. This dedication is filled with love, respect, and admiration I hold for you.

To my beautiful and gorgeous *mother*, my loving and supportive *father*, this work is the result of the love and support you have showered upon me. You have been my source of strength and happiness, no words can truly express the depth of my love and gratitude for you.

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## Abstract

This research was conducted in order to investigate the current insights about the integration of AI technologies particularly Chatbots and language processing algorithms into EFL instruction, focusing on the potential benefits encountered through this process. Employing a mixed-method approach involving quantitative questionnaire with 3<sup>rd</sup> year LMD and qualitative interviews with educators from the English department of the University Centre Salhi Ahmed of Naama, this inquiry investigates how can these AI-powered tools contribute in enhancing the EFL instruction. The findings of this study reveal that these AI technologies, particularly Chatbots, notably, enhance student engagement, offer personalized learning experiences, and provide immediate feedback. However, obstacles such as adapting to technology, insufficient training, and the potential misuse of AI tools persist. The study highlights the importance of comprehensive teacher training programs and further exploration of the most effective AI features for language learning. These insights seek to enhance the incorporation of AI in EFL instruction, ultimately improving the educational experience for both educators and students.

**Key words:** AI-powered tools, EFL Instruction, ICT, Technology.

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## **List of Abbreviations and Acronyms**

**%:** Percent

**AI:** Artificial Intelligence

**CT:** Communication Technology

**EFL:** English as a Foreign Language

**ICT:** Information and Communication Technology

**IT:** Information Technology

**ITS:** Intelligent Tutoring System

**LMD:** Licence, Master, Doctorate

**LMS:** Learning Management System

**NLP:** Natural Language Processing

**UNESCO:** United Nations Educational, Scientific and Cultural Organization

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## **General Introduction**

Nowadays technology has become a central component of our daily lives, its utilization has increased especially after the COVID-19 pandemic, as it facilitates various tasks for humans, impacting a wide array of fields and domains such as, healthcare, communication, economy, entertainment, and most importantly the educational field.

In the educational field, technology has changed the traditional learning methods, introducing digital classrooms, online resources, interactive learning tools, and AI-driven personalized education, thereby enhancing the learning experience and broadened access to knowledge. Hence, AI technologies were integrated into EFL instruction, impacting a variety of aspects changing the fundamental processes of English language learning and teaching, offering a number of features such as personalized learning, interactivity, accessibility, automated feedback and assessment a set of applications that improve language proficiency.

Implementing AI-powered tools is challenging tasks for Algerian universities, due to the fact that most of educators and students express a preference for the traditional methods and face an issue adapting to these new technologies. However, the Algerian authorities are doing their utmost in order to make the integration of AI technologies in EFL instruction successful and less challenging.

Therefore, this research study focuses on the effective integration of AI in EFL instruction, and its contribution in ameliorating language proficiency, in addition to the challenges encountered through this integration. The objectives behind conducting this inquiry are as follow:

- ❖ To examine AI technologies effectiveness in ameliorating the language proficiency.
- ❖ To encourage both educators and students to use AI-powered tools and integrate them in their teaching-learning process.
- ❖ To consider offering training for teachers on these AI tools to prevent

misuse.

- ❖ To identify the challenges encountered during the implementation of AI technologies in the EFL instruction.

In this vain, this study attempts to answer the following question:

To what extent can the integration of AI technologies, specifically Chatbots and language processing algorithms, contribute to the efficacy of EFL instruction?

Therefore, for an in-depth investigation, the following sub-questions were suggested:

- ❖ What are the most used AI-powered tools (mobile applications and Chatbots) by students of EFL class?
- ❖ What are the significant benefits of using AI in EFL instruction?

To address the questions above, the following hypotheses were developed to be testing:

- ❖ It is hypothesized that Chatgpt, Gemini, and google translation, are the most frequently AI tools used by students.
- ❖ It is hypothesized that the potential benefits of using AI in EFL instruction are language proficiency improvement, personalized learning experiences, and accessibility.

This research study consists of two chapters. The first chapter is the theoretical part of the study, addressing the main concepts of this research. It starts with defining ICT in general and specifying it in education as well as higher education, then its implementation in EFL classes. The chapter explores the contribution of technology into the curriculum design and the technological teaching materials. Moving to the AI definition and its integration in higher education. Furthermore, it demonstrates the AI technologies flexibilities and obstacles.

The second chapter comprised the practical part of the study, this inquiry was

carried out in order to explore the effective implementation of AI technologies into EFL instruction, in addition to identify the challenges encountered during this process. It outlines the research methodology, discussing the research objectives, research design, data collection instruments, data analysis and interpretation of findings, pedagogical suggestions and recommendations and the research limitations and restrictions.

# **CHAPTER ONE**

*Theoretical Framework*

- 1.1. Introduction
- 1.2. Information and Communication Technology
- 1.3. Information and Communication Technology in Education
  - 1.3.1. Incorporating ICT in Higher Education
  - 1.3.2. Implementation of ICT in English as a Foreign Language Classes
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- 1.7. Flexibility and Obstacles in Implementing AI in English as a Foreign Language Classrooms
- 1.8. Conclusion

## 1.1. Introduction

The English language holds significant importance as a foreign language, playing a crucial role in international communication across various sectors like technology, education, economics, and diplomacy. While previously undervalued in Algeria, recent initiatives to introduce English into middle and secondary schools (June 1999) and primary schools (2023) represent a positive shift towards recognizing its global relevance. This increasing recognition is evident in the appreciation of English as a vital international language by both students and parents. On the other hand, in higher education, English as a Foreign Language (EFL) is highly esteemed for granting access to global academic resources, enhancing critical thinking, refining communication skills, promoting international collaboration, and preparing students for global career opportunities. Hence, the incorporation of AI technologies, such as Chatbots and language processing algorithms, into EFL instruction further amplifies these advantages by providing personalized learning experiences, instant feedback, and interactive engagement, thereby enhancing the efficiency and effectiveness of language acquisition, seeking to enhance EFL programs in Algeria, and ensuring that students are well-prepared for success in a competitive global landscape.

## 1.2. Information and Communication Technology (ICT)

Technology is increasingly progressing forward; it is being adopted and utilized broadly across diverse domains such as education, business, healthcare, government, media, science, research, etc. Information Communication Technology (ICT) refers to a diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information (**Bizi & Shittu, 2014**).

According to UNESCO, Information and Communication Technology, comprises a varied collection of technological tools and resources employed to transmit, store, create, share, or exchange information. These tools and resources encompass computers, the Internet (websites, blogs, and emails), live broadcasting technologies (radio, television, and webcasting), recorded broadcasting technologies (podcasting, audio and video players, and storage devices), as well as telephony (fixed or mobile, satellite, Visio/video-conferencing, etc.).

Fo Zhang (2010) argue that “**ICT is used as an umbrella term that includes any communication device or application**” (p. 6). To put it differently, ICT encompasses a wide range of tools and technologies used for communication purposes, including both physical devices like smartphones and computers, as well as digital applications such as email and social media platforms. In essence, ICT acts as an umbrella term, highlighting its comprehensive nature in encompassing various means of communication and information exchange.

**Dutton** (2001, p. 7) defined ICT as “**all kinds of electronic systems used for broadcasting, telecommunications, and computer-mediated communication.**”, In other words, ICT refers to a diverse array of technologies, such as computers, software, networks, internet services, and digital tools, all employed for the management and communication of information. This multifaceted framework has become a cornerstone of modern society, reshaping interpersonal interactions, professional endeavours, and educational methodologies. ICT pervasive influence is evident in its role in facilitating efficient communication, revolutionizing work practices, and transforming learning experiences, thereby becoming an indispensable force that has fundamentally altered the dynamics of contemporary life. The emergence of mobile technologies has played a crucial role in democratizing information and communication technology (ICT), ensuring that information is readily available to a broader audience, irrespective of time and location.

Integrating technology in education is a complex task due to its dynamic nature. Hence planning for ICT integration in education is considered as a key element for improvement and development, however, previous research shows that this integration may face various challenges related to the use of learning technologies in the educational systems (**Ashraf et al., 2021; Bordoloi et al. 2021**). ICT integration and implementation is a complex process which requires strategic planning by the policy and decision-makers (**Hashim, 2007; Ghavifekr & Sufean, 2010; Zellweger, 2006**).

### **1.2.1 Information**

In the context of information and communication technology (ICT), information is constantly managed, accessed, and shared through different technological tools and systems. It is not just raw data; it is data that is undergone processing, organization, or structuring to yield meaningful insights and knowledge. This transformation unveils patterns, trends, or connections crucial for effective decision-making and problem-solving. Information includes

facts, concepts, theories, and data that are essential for learning, which helps teachers and students to build knowledge and promotes the learning outcomes.

Communication involves the exchange of information, ideas, or messages among individuals or groups through various channels such as speech, writing, or other mediums. It serves as a fundamental pillar in human interaction, facilitating the transmission of knowledge, perspectives, and emotions. Effective communication not only conveys meaning, fosters understanding, and facilitates discussions on diverse topics, but also promotes collaboration, conflict resolution, and the exploration of diverse viewpoints. Communication in the educational landscape is crucial for the exchange of ideas, supporting the collaboration between teachers and students, as it motivates students to interact and work together.

Technology covers the employment of scientific knowledge, tools, techniques, and systems to address challenges and achieve objectives across various domains. It encompasses a wide array of devices, software applications, and systems designed to execute specific functions efficiently. In the context of information and communication technology (ICT), it has a vital role in information storage, and enhancing the collaboration among individuals. Technology is important in the educational field as it offers divers tools and platforms that facilitate and enhance the teaching-learning process.

IT encompasses a diverse array of technologies focused on collecting, analysing, safeguarding, and conserving information. This includes hardware components like computers and servers, software applications and programs, and interconnected computer networks that facilitate the flow of data. In the educational settings, IT plays a crucial role in granting students access to a vast array of resources, promoting communication, and enriching learning experiences through activities such as research and collaboration. Moreover, IT is instrumental in data management, process automation, and efficiency enhancement across various sectors, empowering organizations and individuals to leverage technology for decision-making, problem-solving, and innovation.

CT encompasses a wide range of tools and systems used for communication and information exchange, including broadcasting systems, networks, devices, and applications that facilitate data transfer and human interaction. In the educational realm, CT plays a pivotal role, enabling learners to communicate, collaborate, and access information through technologies like internet connections, mobile devices, video conferencing tools, and social

media platforms, thereby promoting communication and the dissemination of knowledge. Serving as a crucial link across geographical boundaries, CT connects individuals globally, enabling real-time communication and allowing people to stay informed, interact with others, and access a diverse range of information resources, ultimately enhancing their experiences and interactions.

### 1.3. Information and Communication Technology (ICT) in Education

The advent of globalization marks a pivotal moment in human history, ushering in profound transformations across various aspects of life. Central to this shift is the rise of the internet network, aimed at revolutionizing education to foster advancements in fields like economics and military. This underscores the role of ICT in propelling educational reform, nurturing learners' skills for long-term development. The 1990s witnessed a surge in computer communications and information accessibility, epitomized by the rise of internet-based services like email and the World Wide Web. Simultaneously, the CD-ROM emerged as a standard for software distribution, prompting educators to prioritize technology for enhancing student learning outcomes. Furthermore, the integration of ICT in education reflects a paradigm shift towards learner-centric approaches, emphasizing autonomy, capability, and creativity as key pillars for quality teaching and learning. This transition signifies a fundamental change facilitated by ICT, empowering learners to take charge of their education journey in the digital age.

Hence, the incorporation of ICT in education leads to the emergence of what is termed “educational technology.” According to **Ghavifekr** and **Rosdy** (2015), it encompasses **“technology-based teaching and learning closely tied to the use of learning technologies in educational settings.”** This approach encourages collaboration and communication between educators and learners through various educational technologies, such as video conferences and online discussion forums, enhancing instructional methods, and improving and facilitating access to educational materials. In addition, ICT has improved the educational field by providing a broad spectrum of practices, including e-learning, blended learning, and online courses. ICT can contribute to the development of learners’ autonomy, self-directed learning skills, and creativity, in which learners have more control over their learning process.

Algeria is actively fostering the integration of ICT into its educational system by establishing a comprehensive ICT policy framework and implementation strategy. This strategic approach entails close collaboration between the government and international

agencies, underscoring a dedication to harnessing external expertise and resources. Emphasizing the practical application of ICT, efforts are directed towards integrating it across diverse subjects to optimize learning outcomes. Despite initiatives aimed at providing ICT training for educators, its impact on education delivery remains somewhat constrained, highlighting the imperative to synchronize professional development with curriculum enhancement. Furthermore, infrastructure enhancements encompass the provision of computer labs and Internet connectivity in secondary schools, while primary schools rely on local contributions to drive their ICT policies. Additionally, international partnerships with entities such as **UNESCO** are geared towards elevating teaching standards through e-learning initiatives and resource enrichment, thereby enriching Algeria's educational landscape (**Hamdy**. 2007).

ICT can function as a tool to cultivate a learner-centred approach rather than conventional teacher-centred pedagogy, as it is likely to encourage participation and active learning, empowering students to perceive themselves as the central figures in their learning journey. Consequently, this facilitates interaction among peers and promotes collaborative work. Moreover, ICT is transforming teaching and learning processes by integrating elements of vitality into the learning environment, and learners are permitted access to a variety of sources to obtain information, encouraging participation and active learning.

Furthermore, through various means, ICT has the potential to improve the quality of education. For instance, providing opportunities for the acquisition of basic learning skills can increase motivation through the utilization of various multimedia tools such as videos, television, and computer software. These tools offer immersive and stimulating contexts that involve students in the learning process and encourage them to participate, and the audio-visual effects work on fostering interest and active involvement of students in the learning process, which can be generated by using multimedia computer software.

Information and communication technologies (ICTs) can revolutionize education by making it more accessible, engaging, and effective. ICT platforms can provide interactive exercises to solidify foundational skills, while also offering teachers online training programs to enhance their knowledge. Furthermore, its tools like multimedia and interactive lessons can boost student motivation and participation. Perhaps most significantly, ICTs have the potential to bridge educational gaps by providing anytime, anywhere learning opportunities for underserved communities and individuals. This technology also fosters digital literacy and

collaboration, as students develop critical thinking skills and educators forge partnerships to propel educational initiatives forward.

According to Hamdy, Amr. (2007.) in the "SURVEY OF ICT AND EDUCATION IN AFRICA: Algeria Country Report," it is evident that Algeria has been focusing on the development of ICT-related human resources. The government has established committees and working groups to define national strategies for ICT development, including infrastructure, training, research, and information systems. However, there are still challenges in terms of integrating ICT into the educational system effectively. The report highlights that teacher training in ICT is limited to basic skills and lacks relevance to curriculum integration. Additionally, there is a need to align professional development and ICT programs with content and curriculum development to ensure proper implementation of reforms.

### **1.3.1. Incorporating ICT in Higher Education**

ICTs function as tools that simplify learning and spreading knowledge, ultimately reinforcing the learning process in a more significant and effective way. It promotes universal access to education, boosting equality in instruction and improving the quality of learning. In addition, it helps in the professional development of teachers. ICTs contribute significantly to higher education by enriching pedagogy and didactics for lecturers, fostering collaborative connections with educators across various disciplines. This collaboration not only encourages multidisciplinary exchanges but also promotes innovative teaching practices. Moreover, the integration of ICTs necessitates a focus on teacher training, ensuring that educators acquire the essential skills to effectively incorporate these technologies into their teaching methods. This training not only involves providing technological resources but also emphasizes the development of digital competencies. Furthermore, the infusion of ICTs into higher education serves to improve educational innovation policies, updating traditional teaching approaches and facilitating knowledge transmission through modern technological tools. Ultimately, this integration empowers teachers, enabling them to adapt to the dynamic educational landscape and produce competent professionals capable of meeting the current demands of education in the digital age. In summary, ICTs play a crucial and multifaceted role in higher education, enhancing teaching and learning processes, fostering collaboration, improving educational access, and empowering teachers for the challenges of the digital era. (Martínez-Soto, T., & Espinosa, M. P. P. 2023)

In today's classrooms, there are young minds that are technologically aware, and consider the technological devices as a life need. Recognizing this, educational institutions may facilitate higher learning opportunities for students through the intervention of technology in the transformation or enhancement of the teaching and learning practices. (Martínez-Soto, T., & Espinosa, M. P. P. 2023)

### **1.3.2. Implementation of ICT in English as a Foreign Language Classes**

The integration of information and communication technology in English as foreign language classes plays a crucial role in enhancing teaching and learning effectiveness. Teachers view ICTs as extremely valuable tools that inject energy, interest, and positive outcomes into the educational process. It is considered or seen as very important resources that enrich teaching and learning experiences by making them enjoyable, dynamic, and effective. The incorporation of ICT into daily classes not only facilitates easy learning but also fosters an environment that is lively and engaging. Moreover, ICTs provide access to a large amount of information and knowledge, encompassing historical and modern subjects, enriching the teaching-learning process with creative methods and techniques. The incorporation of ICTs in language classrooms leads to considerable improvements in various aspects of learning. Precisely, it fosters students' participation, collaboration, interaction, and sharing of ideas. Through the engagement of ICTs in language classes, teachers can create a more interactive and engaging environment. Beyond the classroom, educators find that the incorporation of ICTs in English teaching contributes to their professional development, keeping them familiar with newly developed methods, techniques, and activities.

This implementation makes teachers more creative, standardized, updated, competent, and confident in their roles. However, teachers are indicating a requirement for ICT training to boost their proficiency, expertise, and confidence in effectively employing ICT tools and applications in their classrooms. This training is considered essential for teachers to derive optimal benefits from ICT in language education. Furthermore, the integration of ICT in education leads to a significant shift from traditional teaching methods to more inventive approaches, fostering a more interactive and engaging learning environment. Teachers' self-motivation in incorporating ICT directly influences positive changes in teaching and learning practices. Overall, the multifaceted contribution of ICT in EFL classes includes the enhancement of teaching and learning effectiveness, ensuring access to knowledge and resources, support for professional development, promotion of training and skill development

for teachers, and the facilitation of a transition towards more progressive teaching practices.

### **1.3.3. ICT in The Teaching Process**

Technology plays a pivotal role in elevating and empowering the teaching process, fostering more engaging, interactive, and personalized learning experiences for students. Various methods exist through which technology can aid educators in refining and enhancing their teaching approaches, encompassing; differentiated Instruction involves tailoring teaching methods to accommodate the diverse needs and interests of students within the classroom, utilizing educational apps, online resources, and various technologies. Similarly, teachers use technology to integrate multimedia resources for instance videos, and audio clips into their lessons. These resources facilitate the complex concepts making them more attainable and enjoyable for students as well as boosting their understanding and the comprehensibility of information. Moreover, technology reinforces collaborative learning by allowing students to participate in projects, and exchange ideas through platforms, video conferencing, and enhancing students' communication capacities. Concurrently, technology supports formative assessment practices by providing tools for immediate feedback, such as online quizzes and real-time polls, allowing teachers to measure students' improvement and modulate their strategies accordingly. In addition, it provides teachers with various professional development resources including online courses, and educational blogs which offer teachers new and innovative teaching methods, and new technologies that help them to develop and improve their teaching skills, as well as equip teachers with tools for analysing data and observing students' development and progress, through these tools the teacher can distinguish areas for evolution in student learning. (Mahboubeh Taghizadeh & Zahra Hasani Yourdshahi 2019)

### **1.3.4. ICT in The Learning Process**

Technology not only elevates the teaching methodology but also significantly amplifies the learning process itself. Integrating technology into the learning process can enrich it with innovative and dynamic ways for learners to engage, fostering an educational setting that prioritizes the learner-centred approach. This can be conveyed through various means. At the outset, technology provides learners with Access to Resources, enabling them to explore a wide variety of materials such as online courses, interactive exercises, and learning applications. This access not only enhances language skills but also fosters an immersive learning environment. Additionally, Personalized Learning is facilitated by language

platforms and applications, delivering tailored experiences that meet individual needs. This personalized method allows learners to progress at their own pace and focus on areas requiring improvement. Moreover, fostering Interactive Learning through the integration of components like games, quizzes, virtual reality simulations, and online language communities enhances the effectiveness and enjoyment of the learning process. In addition to, Language Practice is enhanced through the use of communication tools and online platforms, allowing learners to improve fluency and proficiency by engaging in interactions with native speakers or peers. Automated Feedback and Assessment tools provide valuable insights that assist learners in identifying and correcting errors in language areas such as pronunciation and writing tasks. Finally, the Accessibility of language learning is improved through technological devices and online platforms, enabling learners to engage with language materials at any time and from any location, thereby enhancing their interaction with language resources. **(Mahboubeh Taghizadeh & Zahra Hasani Yourdshahi 2019)**

#### **1.4. Technology Contribution to Curriculum Design**

Integrating technology within the curriculum design plays a crucial role in empowering teaching and learning experiences, increasing student engagement, and preparing them for a technology-driven world and success in this digital age. This involves using interactive tools, virtual reality, and online activities. These tools can help students grasp language concepts and make the learning process more enjoyable and effective. Technology also allows for personalized learning with individualized feedback and flexible teaching methods suitable for the different learner's needs and learning styles, enhancing language learning. Moreover, it promotes communication and collaboration beyond the classroom by connecting students with peers, teachers, and diverse resources, developing essential skills like teamwork and global awareness. In addition, its integration encourages innovative teaching methods, creating dynamic learning environments through interactive classes and online projects. Furthermore, to successfully incorporate technology into the curriculum, educators should consistently improve their technological awareness and skills through continuous training, participation in workshops, involvement in collaborative communities, and staying updated on the newest educational technologies. **(Devi Hanas Tasya, & Siminto. 2023)**

Technology integration should not be an afterthought but a strategic partner in curriculum design, and it should align with learning objectives, enhance instruction, and promote active learning. However, educators need proper training to utilize these tools

effectively, ensuring accessibility for all students' benefit. Technology also facilitates real-time feedback and data analysis, allowing educators to tailor instruction and continuously improve the learning experience. This cyclical approach ensures that this technology serves to enhance, not replace, effective teaching practices.

### 1.5. Technological Teaching Materials

In this digital age, where technology is integrated into our lives and is considered a lifestyle, as well as a key component in every domain, including education, healthcare, business, entertainment, and communication. Concerning the educational field, technology has played a significant role in promoting the teaching-learning process by offering a wide range of technological materials. Embracing technological advancements in education can revolutionize the learning experience, and several tools play a pivotal role in this transformation. For instance, Virtual Libraries offer flexible access at any time and from any location, providing students with a wide range of authentic resources. This not only caters to their specific needs and preferences but also exposes them to a wealth of information from libraries worldwide, enriching their knowledge beyond local boundaries. Additionally, Online Language Platforms like Duolingo, Memrise, and Rosetta Stone contribute to the teaching process by fostering engagement and creating an active learning environment. These platforms also facilitate interaction with native speakers, enhancing language acquisition. Moreover, Online Interactive Exercises and Quizzes serve as valuable tools for teachers, enabling them to create engaging, personalized, and efficient learning experiences for their students. Furthermore, Language Learning Management Systems (LMS), exemplified by platforms like Moodle, ensure convenient access to course materials, promoting interaction and collaboration between students and teachers. By leveraging these technological teaching materials, educators can craft an interactive, informative, and tailored learning environment, ultimately preparing students for effective communication in the digital world. (Devi Hanas Tasya, & Siminto. 2023)

### 1.6. Artificial Intelligence (AI) Background

Artificial intelligence (AI), is defined as “**the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings**” (Copeland, 2024). The term is commonly used to describe the project of developing systems that possess intellectual processes similar to those of humans, including the ability to reason, discover meaning, generalize, and learn from past experiences. AI is the emulation of

human intelligence in machines, essentially computer systems, and it imitates particular human cognitive processes including learning, reasoning, and self-correction, problem-solving, creativity. AI can automate basic activities like data entry, sorting emails, and it also can handle complex tasks such as medical diagnosis, strategic planning.

### **1.6.1. The Integration of Artificial Intelligence (AI) in Education**

AI has been increasingly promoted for its strategic value in education, serving as an effective learning tool that lessens the burdens of both teachers and students, providing enhanced learning experiences for students. **“Golden opportunities for Artificial Intelligence and Technology Enhanced Learning are unfolding, evidenced by the digitalization movement of education, gamification, and the stringent need for massively scalable (and therefore computerized) personal learning experiences”** (Loeckx, 2016), coupled with the current educational reforms, including the digitization of learning materials, gamification, and personalized learning experiences, numerous opportunities arise for the integration of AI applications in education. For example, the modelling potential of AI techniques has been exploited systematically to develop reactive and adaptive tutorials for the construction of individualized learning environments as compensation for the shortage of teachers through the use of Intelligent Tutoring System (ITS) (B. Boulay, 2016).

Based on an interview with Robert Lawler; **“Lawler's approach to AI in education involves designing microworlds that serve as entry points to richer knowledge, with a focus on engaging learners and shifting accountability from students to teachers”** (R. W. Lawler and N. Rushby, 2013). In this approach, microworlds are designed as educational environments that act as entry points to more profound and comprehensive knowledge. The primary focus is on engaging learners, creating a learning environment that captivates their interest and participation. Additionally, there is an emphasis on shifting accountability from students to teachers. This implies that the responsibility for the learning process is more actively placed on educators, potentially through the use of AI tools, to enhance the overall educational experience for students. The goal is to create an environment where learners are actively involved, and educators play a pivotal role in guiding and facilitating the learning journey.

### **1.6.2. Contribution of Artificial Intelligence (AI) in Higher Education**

Artificial intelligence (AI) has made significant strides across various sectors, yet its

direct influence on education remains largely unfulfilled despite numerous promises. **Zuboff's** (2019) extensive analysis sheds light on AI's diverse applications in higher education, focusing on four key areas: profiling and prediction, intelligent tutoring systems, assessment and evaluation, and adaptive systems for personalization. Meanwhile, **Tegmark** (2018) emphasizes the ongoing quest for achieving "Artificial General Intelligence," aligning machines' processing capabilities with human cognitive abilities. This approach serves as inspiration for educators to integrate AI advancements into educational settings, creating a more engaging learning environment for both students and instructors, akin to a **“crossbreed of a human and a machine”** (Ford, 2018, p. 15).

In the context of implementing artificial intelligence in education, it is important to assess a variety of key theoretical foundations. Cognitive science, which provides insights into designing AI systems aimed at simulating human language acquisition processes (**Anderson, J. R.** (2007), **Chomsky, N.** (1957)). Linguistics, which guides the development of AI systems to ensure accurate language comprehension and generation through linguistic theories, syntax, semantics, and pragmatics (**Crystal, D.** (2008), **Pinker, S.** (1994)). Natural language processing (NLP), where techniques such as sentiment analysis, machine translation, and speech recognition enable AI systems to interact with learners using natural language (**Jurafsky, D., & Martin, J. H.** (2019), **Manning, C. D., Raghavan, P., & Schütze, H.** (2008)). Additionally, pedagogy is essential for effective language instruction through AI systems, incorporating principles like communicative language teaching, task-based learning, and learner autonomy to support comprehensive language learning (**Richards, J. C., & Rodgers, T. S.** (2001), **Nunan, D.** (2004)). Addressing ethics and bias, including concerns about data privacy, algorithmic bias, and fairness, is crucial to ensure AI systems in language education promote equity and inclusivity (**Mittelstadt, B. D., Allo, P., Taddeo, M., Wachter, S., & Floridi, L.** (2016), **Diakopoulos, N.** (2016)). Integrating these theoretical foundations into the practical implementation of AI in language education empowers educators to utilize AI technologies, enhancing language learning outcomes, offering individualized support to learners, and crafting engaging and effective language learning experiences.

Furthermore, the rapid progression of AI is reshaping service delivery in higher education. Researchers highlight that learning is a social exercise; interaction and collaboration are at the heart of the learning process, particularly in online environments. However, effective online collaboration requires facilitation and oversight. In this context, AI emerges as a pivotal facilitator of collaborative learning. Its contributions include enabling

adaptive group formation, facilitating online interactions, and generating comprehensive summaries of discussions, thereby equipping human tutors with valuable tools to steer students towards the objectives of their respective courses.

### **1.6.3. Chatbots and Language Processing Algorithms Contribution in EFL Pedagogy**

Chatbots and language processing algorithms are closely linked to Artificial Intelligence as they are key components of AI systems designed to interact with users in natural language. First, Chatbots according to the Oxford English Dictionary defines technology as “a computer program that can hold a conversation with a person, usually over the internet” (Oxford Learner’s Dictionaries). It is a computer program or an artificial intelligence system designed to conduct conversations with users, typically through text or voice interactions. Chatbots are used in various applications, and they are capable of being programmed to comprehend and respond to user questions, offer information, execute tasks, or simulate conversation in a manner resembling human interaction. Second, Language Processing Algorithms or Natural Language Processing (NLP) algorithms are computational techniques and models designed to enable computers to understand, interpret, and generate human language. These algorithms process and analyse large amounts of natural language data, allowing machines to perform tasks such as text classification, sentiment analysis, language translation, speech recognition, and information extraction. NLP algorithms utilize machine learning and artificial intelligence to extract meaning from text, enabling applications like Chatbots, language translation services, and text summarization tools to effectively interact with and comprehend human language (Tebekov, E., & Prokhorov, I. (2021)).

Furthermore, Chatbots and language processing algorithms stand as pioneering tools in the field of English as a Foreign Language (EFL) pedagogy, offering a plethora of innovative strategies to elevate language learning experiences. These advanced technologies not only facilitate interactive conversations with learners but also deliver tailored feedback, thereby fostering learner autonomy and engagement. Through the utilization of sophisticated natural language processing and machine learning techniques, these AI-powered Chatbots can be intricately customized to cater to the unique proficiency levels of individual learners. This personalized approach not only enhances language competence but also contributes to positive learning outcomes by bolstering various language skills such as pronunciation, writing, and vocabulary acquisition. (Xiao, Y., & Zhi, Y. (2023))

In the EFL landscape, language processing algorithms and Chatbots serve as invaluable assets, creating diverse opportunities for interactive language practice, personalized feedback, and heightened learner engagement. By seamlessly integrating these state-of-the-art tools into language teaching practices, educators empower students to cultivate their language skills in a more immersive and meaningful manner. This transformative approach not only enhances the effectiveness of language learning but also fosters a more engaging and enriching educational experience for learners, ultimately paving the way for enhanced linguistic proficiency and cultural understanding.

### **1.7. Flexibility and Obstacles in Implementing AI in English as a Foreign Language Classrooms**

Incorporating artificial intelligence (AI) into the teaching of English as a Foreign Language (EFL) offers various opportunities to improve the educational process. The following examples demonstrate the ways in which AI can be efficiently utilized to assist and enhance the instruction and learning of EFL: (**Rebolledo & González-Araya, 2023**)

- Adaptability of AI tools: AI integrated into EFL classrooms should adapt to different teaching methods, students' needs, and learning aims.
- Personalization of learning: AI has the possibility to provide customized learning experiences by conforming content, pace, and feedback according to student's needs. flexibility in AI systems allows teachers to personalize teaching to address the varied learning styles.
- Incorporating AI into the current curriculum: AI technologies should be adaptable to combine with the existing EFL curriculum. This enables teachers to incorporate AI tools in their lesson plans without disrupting the whole learning aims.
- Support for different language skills: the use of AI tools in EFL classrooms should support the reinforcement of various skills including listening, speaking, reading, and writing.
- Collaboration and interaction: flexibility in AI implementation enables collaborative learning experiences where students can interact with AI-driven tools, colleagues, and teachers, which encourages communication and language proficiency.

Although incorporating artificial intelligence (AI) into the teaching of English as a Foreign Language (EFL) brings about notable advantages, it is crucial to acknowledge and overcome the potential obstacles that may emerge. The following obstacles underscore some

of the primary concerns that educators and institutions could face during the integration of AI in EFL learning environments:

➤ Incorporating AI technology in schools/universities leads to spending a huge price tag, for diverse expenses such as purchasing computers or tablets, and providing training to teachers. As a result, some schools/universities with limited budgets face problems in integrating AI technology.

➤ Technological Accessibility: is a significant hurdle for low- and middle-income countries in the realm of blended learning, with a primary concern being the availability of internet access and computing devices (Ashraf et al., 2021; Bordoloi et al., 2021). Given that numerous nations continue to grapple with establishing robust internet infrastructure and logistical assistance, educators and learners frequently encounter the financial strain associated with internet connectivity and personal computer ownership (Ashraf et al., 2021).

➤ Technical issues: AI systems may face troubles or compatibility issues with current classroom technology, and it is possible to cause an obstruction that affects the learning process.

➤ Privacy concerns: grow worries about privacy and security when AI tools gather and analyses data of students in the educational environment.

➤ Teacher training: teachers must acquire training to efficiently incorporate AI tools into their teaching practices.

➤ Language accuracy: AI systems might not interpret subtle nuances in a language, which leads to inexactness in language instruction and feedback.

## 1.8. Conclusion

In conclusion, this chapter presents a thorough review of the concepts related to the integration of AI in EFL instruction. It includes the definition of information and communication technology in general and in education, the implementation of ICT in English as a foreign language class, as well as its incorporation in higher education. It covers the contribution of technology in curriculum design, presents technological teaching materials, and emphasizes the integration of AI in education and its contribution to higher education. Last but not least, it shows the possible obstacles to implementing AI in EFL classrooms. This chapter explains what is going to be discussed in the next chapter.

# **CHAPTER TWO**

*Data Collection and Analysis*

- 2.1. Introduction
- 2.2. Research Objectives
- 2.3. Research Design
  - 2.3.1. Research Approaches
  - 2.3.2. Sampling
  - 2.3.3. Sampling Technique
- 2.4. Data Collection Instruments
  - 2.4.1. Students' Online Questionnaire
  - 2.4.2. Teachers' Interview
- 2.5. Data analysis
  - 2.5.1. Questionnaire Analysis
  - 2.5.2. Interview Analysis
- 2.6. Interpretation of the Findings
- 2.7. Pedagogical Suggestions and Recommendations
- 2.8. Research Limitations and Restrictions
- 2.9. Conclusion

### **2.1. Introduction**

This chapter functions as an intermediary, facilitating the transition from the theoretical underpinnings to the empirical implementation of the conducted research. It covers the different steps followed to investigate the Current Insights of Artificial Intelligence into EFL Instruction in Naama University Centre.

The aim of this chapter is to offer a comprehensive and detailed description of the case study, encompassing the utilized methods, sample selection, and research instruments employed. Moreover, it includes the different methodologies chosen to address the research questions and emphasises the results of the study in relation to the hypotheses and the objectives.

### **2.2. Research Objectives and Motivation**

The objectives of this research are to investigate the influence of AI technologies on the enhancement of EFL instruction effectiveness, and their contributions to ameliorating language proficiency among EFL learners, in addition to the challenges encountered in integrating AI technologies into EFL classrooms.

The purpose of this study is to provide valuable insights and implementable advice in the AI technologies integration into EFL instruction. Educators and learners can benefit from the findings of this study to be aware of the various qualities offered by AI technologies to enhance EFL instruction, simultaneously improve language proficiency and fostering a more dynamic and effective learning environment.

### **2.3. Research Design**

The research design serves as the strategic plan that outlines the execution of a research study. It acts as a roadmap that directs the entire research process, from gathering the data to its analysis, with the goal of addressing the research questions or testing the hypotheses. A carefully constructed research design is essential to guarantee that the collected data are reliable, valid, and closely linked to the research objectives.

A case study research design has been selected for this research project. This approach allows for a comprehensive and detailed investigation of a particular instance, facilitating a complete comprehension of the complexities and difficulties of the AI technologies integration's, within the specific setting of Naama University Centre. Moreover, it offers a solid structure for gathering both qualitative and quantitative data, enabling a detailed and multi-faceted exploration of the research subject.

Among various types of case studies, including exploratory, descriptive, and explanatory, the selected one for this research is the exploratory case study design. This selection is suitable and appropriate due to its emphasis on generating new questions, hypotheses, and a deeper comprehension of the phenomenon under investigation. This design will provide beneficial insights into both the advantages and challenges associated with the integration of AI in EFL instruction.

### 2.3.1. Research Approaches

A successful research journey depends on employing a defined research approach to answer all the questions that are being asked. The selected research approach defines the methodology, data collection techniques, analysis methods, and the overall structure of the research process. The prevalent research approaches include quantitative and qualitative approaches.

Quantitative research constitutes an empirical investigative method that relies on the systematic collection of numerical data. Through the use of statistical techniques, quantitative research attempts to develop and test theories, as well as hypotheses, regarding a specific phenomenon under investigation. In contrast, qualitative research emphasizes collecting and analysing non-numerical data. The collection of this data often involves methods like interviews, observations, and surveys, whereas the analysis emphasizes the interpretation and understanding of detailed descriptive data to uncover insights. Nevertheless, qualitative and quantitative approaches should not be viewed as opposites or dichotomies; instead, they represent contrasting points along a spectrum (Newman & Benz, 1998).

In this research, the selected approach is a mixture of both quantitative and qualitative approaches which provide a deeper and comprehensive understanding of a certain phenomenon. The quantitative approach was employed by distributing a questionnaire to students containing both open-ended and close-ended questions, which help gather

numerical data. For the qualitative approach, an interview was conducted for educators.

### 2.3.2. Sampling

**Kothari and Garg (2014)** define sampling as the process of selecting representative elements from a given population that will form the sample. It is the selection of a group of participants from a larger population, it is a significant technique for collecting data to draw valid conclusions and generalizing it to the whole population.

### 2.3.3. Sampling Technique

This case study employed a non-probability sampling, adopting the purposive sampling technique also known as judgmental sampling. According to **Crossman (2020)**, purposive sampling is non-probability sampling; it is the selection of sample elements based on the researcher's judgment rather than a random basis or probability. Through the application of this technique, the research targeted participants who were suitable and had a relationship with the study, and they were in direct contact with the use of AI in EFL instruction. These participants were selected because their perspectives will add valuable and useful insights to the study, as well as enhance the findings.

## 2.4. Data Collection Instruments

A combination of two different research instruments was utilized to show the benefits of integrating AI in EFL instruction and its potential challenges; a questionnaire was submitted to the students selected as sample, and an interview was conducted with the educators. Through the combination of these two instruments, the study strives to provide a precise and comprehensive investigation of AI's contribution to EFL instruction.

### 2.4.1. Students' Questionnaire

A questionnaire is a data collection instrument; it is a set of questions for the purpose of gathering information. It can be either structured with closed-ended or open-ended questions, or it can combine the two. According to **Creswell (2012:382)**, **“a questionnaire is a form of survey design in which participants answer questions and return them to the researcher. Participants choose to answer questions and may offer demographic information.”**

The questionnaire contained 11 questions and was distributed to 46 participants. All the responses of the participants are confidential and anonymous; no contact details were asked. In addition, a brief explanation of the topic was provided to give a clear idea of the study.

The questionnaire aimed at:

- Previous experiences of participants with AI technologies.
- Investigate participants' attitudes towards the integration of AI technologies into EFL instruction.
  - Identify participants' familiarity with AI tools for the purpose of learning the English language.
  - Explore the challenges that must be faced after the integration of AI into EFL instruction.
  - Extent of the utilization of AI in their research proposal preparation.
  - Gather suggestions for improving the integration of AI in EFL instruction for 3rd year LMD.

### **Section I: Demographic Information (Q01)**

This part is about gathering demographic data about participants (age, gender, experience with AI technologies) to understand and have a clear idea about the sample.

### **Section II: AI Perceptions in EFL Instruction (Q02)**

This section focuses on the attitudes of participants toward the integration of AI in EFL instruction and how its integration can contribute to the development and enhancement of EFL instruction.

### **Section III: Experience with AI in EFL Instruction (Q03)**

This section explores the experience of participants with AI-powered tools for learning English and how their experience was after using these tools.

### **Section IV: Perceived benefits and challenges in EFL instruction (Q04, Q05)**

This section presents the benefits of using AI in EFL instruction according to the participants and which one is the most important, as well as identifies the potential challenges after the integration of AI into EFL instruction.

**Section V: AI contribution to 3<sup>rd</sup> year LMD classes (Q06, Q07, Q08, Q09)**

This section explores the opinion of the participants on the current integration of AI in EFL instruction and the specific AI-powered tools that is currently being used in EFL instruction for 3rd year LMD, as well as the impact of the incorporation of AI on the learning experiences of 3rd year LMD students in English courses and how it has contributed to their research proposal preparation.

**Section VI : Future Recommendations (Q10, Q11)**

This section permits the participants to suggest solutions to improve the integration of AI in EFL instruction for 3rd-year LMD students and the functionalities of AI that are beneficial for EFL instruction in the future.

**2.4.2. Teachers Interview**

The interview is a data collection instrument; it is a process of asking questions in order to gather data. It involves interaction between two people or more, either by listening to their responses, recording them, or combining these methods. There are four types of interviews: structured interviews, semi-structured interviews, in-depth interviews, and focused group discussions.

In this research, an interview was conducted at the English department of the University Centre of Naama. It involved four English professors, all of whom hold doctoral degrees, and these professors were selected randomly. In this study, a structured interview was conducted; seven questions were asked, and the duration of the interview was around 30 minutes. Through this interview, the aim was to gather more information about the topic and obtain the educators' perspectives on the integration of AI in EFL instruction and its role in ameliorating the English language. Additionally, it presents a comprehensive and detailed understanding of the phenomenon under investigation.

**2.5. Data analysis**

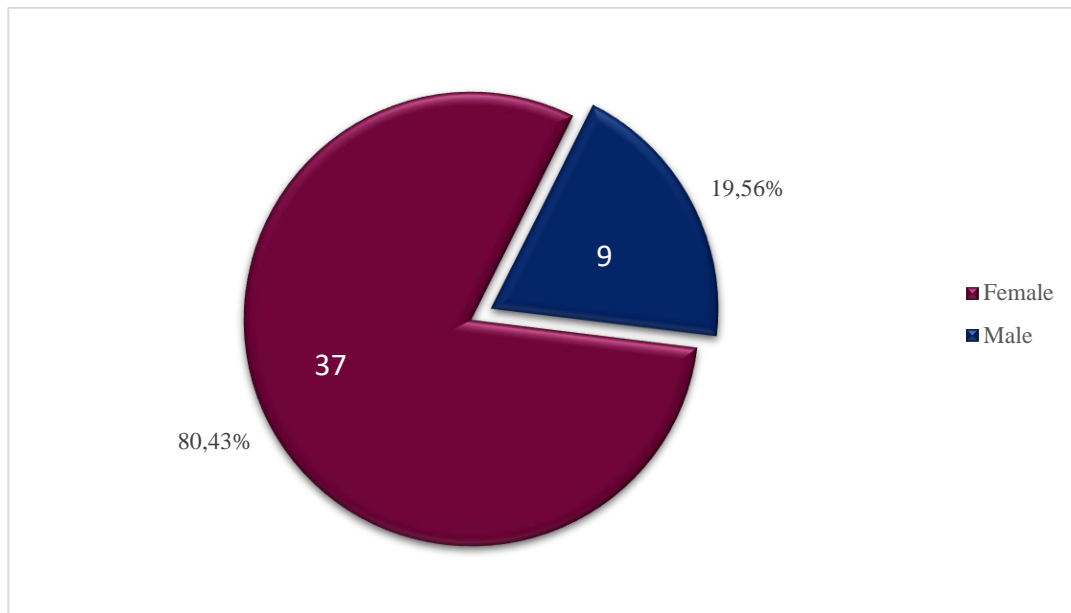
Data analysis is a process of collecting, correcting, and interpreting data to reach a useful information, draw conclusions, and provide valuable insights, by using methods or techniques to analyze data. It is a crucial part in the scientific research.

2.5.1. Questionnaire Analysis

Section I: Demographic Information

In the process of demographic data collection, participants were deliberately not requested to provide their personal information, such as names or contact particulars, in order to maintain confidentiality and anonymity throughout the study. This measure was undertaken to create an environment that would inspire the participants to provide truthful and accurate responses.

Q1: What is your Gender?



Pie Chart 2.1 Students' Gender

The study sample mostly comprised female participants, constituting 80.43% of the total, with males comprising the remaining 19.56%. This gender distribution highlights a significant pattern within the research context, indicating that a greater tendency among female participants toward engagement with AI technologies compared to male participants.

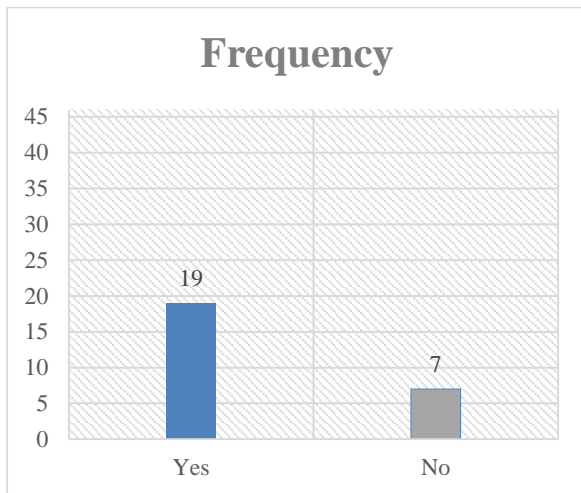
Q2: What is your age?

Table 2.1 Students' Age

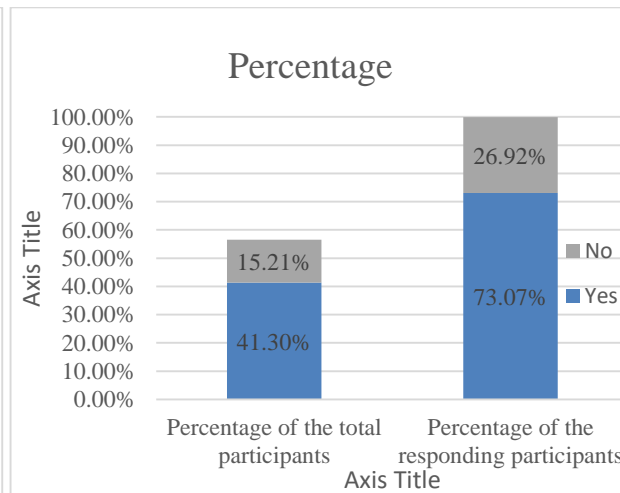
Age range	Frequency	Percentage
19 - 24	41	89.18%
25 - above	5	10.86%

The study primarily encompassed participants below the age of 25, constituting 89.18% of the sample, while the remaining 10.86% fell within the demographic of 25 years and older. This result shows the significance of age as a pivotal determinant, indicating a higher level of interest in AI technologies among younger participants.

**Q3:** Do you have any experiences with AI technologies?



**Bar Graph 2.1**

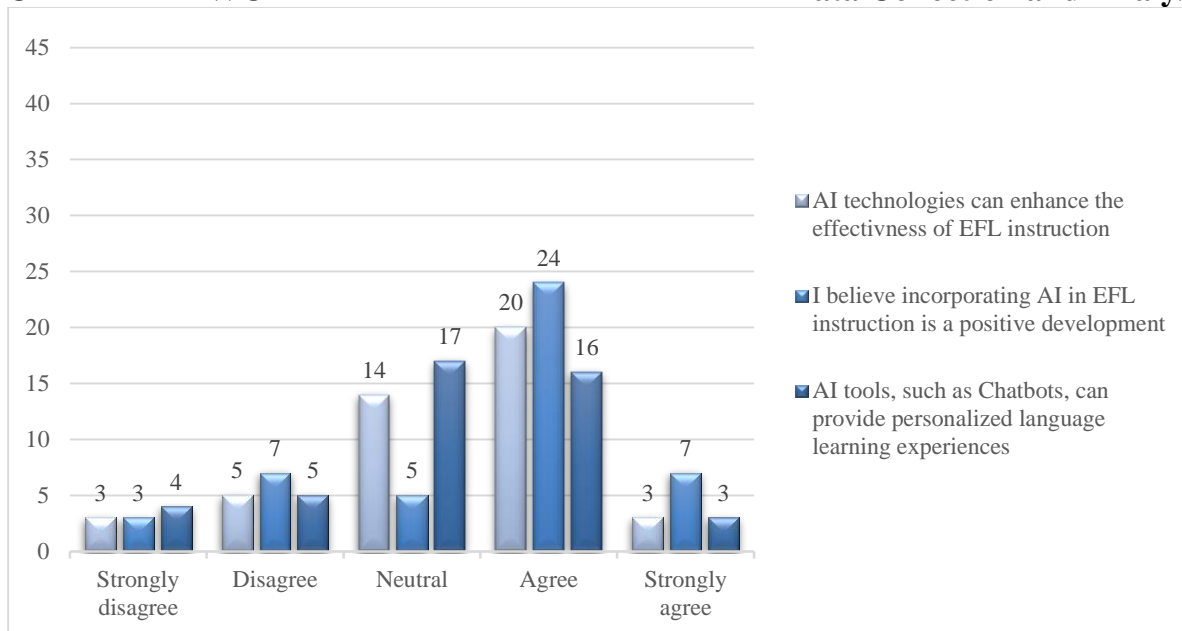


**Bar Graph 2.2**

56.52% of the sample responded to this inquiry, the analysis of participants’ previous experience with AI technologies, indicates a varied distribution within the sample. 41.30% of the total participants reported having experienced the usage of AI technologies in their learning journey, whereas the rest 15.21% indicated a lack of prior experience in this domain.

**Section II: General Perception of AI in EFL Instruction**

**Q2:** Please indicate your agreement with the following statements:



**Bar Graph 2.3** Agreement with The Statements

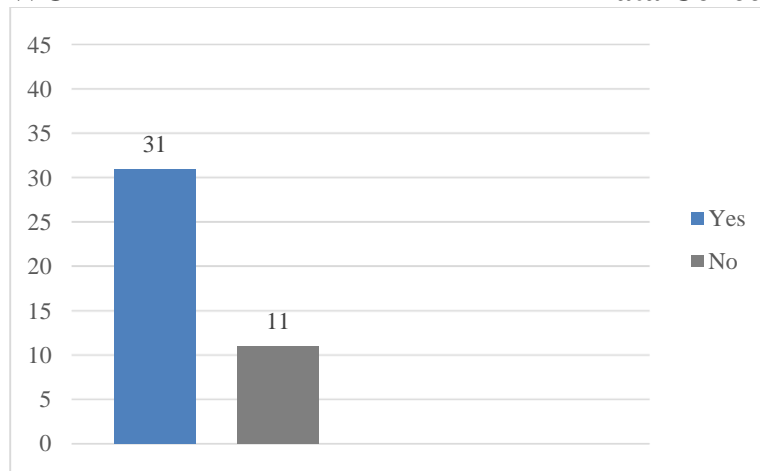
The responses to the previous question provide insightful information about the participants' opinions regarding the AI technologies integration into EFL instruction.

In response to the initial statement suggesting that AI technologies can enhance the effectiveness of EFL instruction, 17.39% of participants either strongly disagree or disagree, while half of them (50%) agree or strongly agree that AI technologies are effective in enhancing EFL instruction.

Furthermore, the majority of the participants (67.39%) perceive the incorporating AI as positive development in EFL instruction. Similarly, regarding the last statement that questioning whether AI tools, such as Chatbots, can provide personalized language learning experience, 41.30% of the participants either strongly agreed or agreed with it, while 19.56% strongly disagreed and disagreed.

**Section III:** Experience with AI in EFL Instruction

**Q3:** Have you ever used AI-powered tools for learning English? (e.g., Chatbots, language processing apps, etc.)



**Bar Graph 2.4** The Use of AI-Powered Tools

The questionnaire findings reveal that the majority of the participants 67.39% have utilised AI-powered tools in order to learn English, while 23.91% have claimed that they have not.

- If yes, please describe your experience and mention specific tools you have used.

The responses indicate that the usage of AI-powered tools to learn English was helpful particularly due to their convenience of use anytime and anywhere, in addition they also reported that it made learning more enjoyable and easy for them.

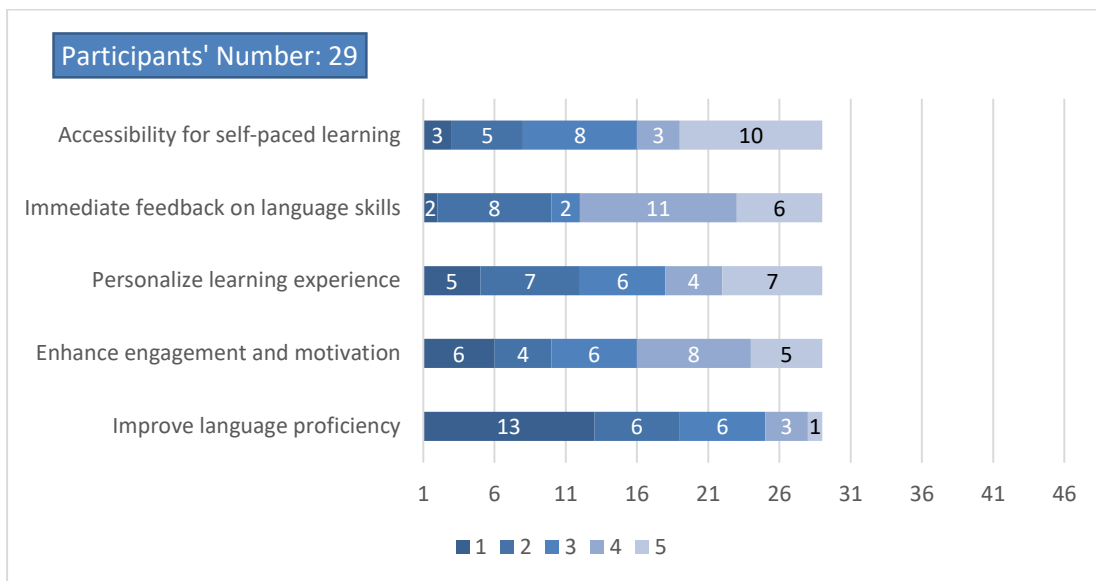
- If no, would you be open to incorporating AI technologies in your English language learning? Why or why not?

The responses varied, some could not have the chance to use or incorporate them in their learning process, either due to lack of access to materials or motivation, others stated that they preferred the traditional methods, finding them more useful and convenient.

Overall, the results show how widely used AI-powered tools are for learning English as well as how different opinions exist regarding their usefulness and efficacy.

#### **Section IV:** Perceived benefits and challenges in EFL instruction

**Q4:** Please rank the following potential benefits of using AI in EFL instruction from 1 to 5, with 1 being the most important and 5 being the least important:



**Stacked Bar 2.1** Ranking Potential Benefits Of Using AI In EFL Instruction

Analysing participants' rankings of the potential benefits gained from using AI reveals that the majority (44.82%) ranked the statement “Improve language proficiency” as their top choice out of the available options. Additionally, an equal number of participants (6, accounting for 20.68%) ranked it in both the second and third places.

Regarding the second statement “Enhance engagement and motivation” 20.68% (6 participants) ranked it as their first choice, whereas a fine number of them (8, accounting 27.58%) have ranked it as their fourth choice.

Furthermore, only 17.74% of the total (5 participants) ranked the statement “Personalized learning experience” as their first choice, while most of them choose it the fourth in rank. “Immediate feedback on language skills” this statement was the least favourable as only 2 (accounting 6.89%) had gave it the first place, meanwhile, most of them (11, accounting 37.93%) ranked it as their fourth choice.

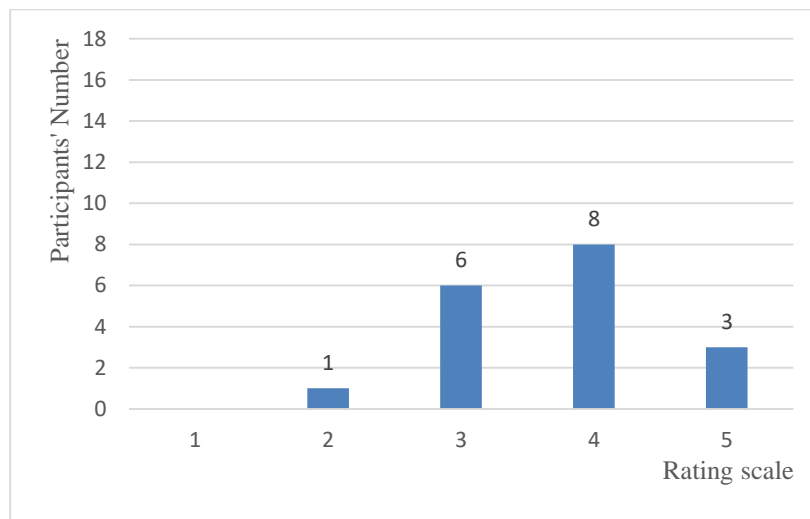
Lastly, the statement “Accessibility for self-paced learning” also received lower rankings where 34.48% (10) of the participants ranked it as the last rank 5, while only three participants gave it the first place in rank.

**Q05:** what challenges do you foresee in integrating AI into EFL instruction?

After analysing students’ responses regarding the potential challenges following the integration of AI into EFL instruction. Some of the challenges that might face is that both students and teachers are more used to the traditional method which makes it hard to interact and adapt with AI technologies. While others see the lack of experience with AI technologies will lead to the misuse of them. Whereas others believe that there are no challenges related to the integration of AI into EFL instruction.

**Section V:** AI contribution to 3<sup>rd</sup> year LMD classes

**Q6:** In your opinion, how well is AI currently integrated into the EFL instruction (On a scale of 1 to 5)



**Bar Graph 2.5** Rating AI Validity In EFL Instruction

Participants were requested to rate the validity of AI integration into EFL instruction, however, only 18 participants of the total number (accounting 39.13%) fulfil this request. Among those who responded, 23.91% (11 participants) have expressed a favourable opinion regarding AI validity in EFL instruction where 3 participants (accounting 6.52%) rated it as the best option giving it score of 5 out of 5, while the remaining 8 (accounting 17.39%) rated it as 4 out of 5.

In contrast, 15.21% of participants have expressed a less favourable opinion in which 6 participants (13.04%) rate it as 3 out of 5 and the last participant gave it a score of 2 out of 5.

**Q07:** what specific AI technologies or tools are currently being used in the EFL instruction for 3rd-year LMD students, if any?

There was a variation in the responses of participants; each respondent chose an AI-powered tool that is currently used in EFL instruction, but the common one is ChatGPT, while the rest of the participants selected different tools such as QuillBot, Progress, Moodle, virtual libraries, and Google Translation. A minority used none of these tools and preferred traditional methods.

**Q08:** how do you think the integration of AI has impacted the learning experiences of 3rd – year LMD students in English language courses?

The majority described the impact of AI on the learning experiences as having a good impact; it helped them to understand some difficult lectures and motivated them to interact and communicate, while others claimed that it facilitates their learning experiences and makes it more effective and enjoyable in comparison to the archaic method. On the other hand, a small number of respondents consider the impact of AI on their learning experiences negative because it distracts their focus.

**Q09:** has AI contributed to your research proposal preparation process? In which way?

AI tools play a remarkable role in helping students who are about to graduate or have projects to prepare; they facilitate the process for them. According to participants, it was very helpful, and they used it to gather information, reformulate their writing to more academic ones, and guide them on how to write their research proposal.

#### **Section VI:** Future Recommendations

**Q10:** what recommendations do you have for improving the integration of AI in EFL instruction for 3rd –year LMD students?

The participants recommend that improving AI integration in EFL instruction should give importance and take AI seriously, trying to use AI technologies permanently in the classroom from both teachers and students, as well as encouraging students to use these technologies.

**Q11:** Are there specific AI features or functionalities you believe would be particularly beneficial for EFL instruction in the future?

A number of features and functionalities that might be beneficial for EFL instruction in the future were mentioned, from these features accessibility; the easy access to lectures from any place and at any time, personalized learning; adapting to learners' needs and interests, and motivation; motivating students to interact and communicate during lectures.

### **2.5.2. Teachers' Interview Analysis**

**Q1:** As an educator, what is your perspective on the integration of Chatbots or mobile applications in the teaching and learning process?

After analysing responses, results reveal that educators' perspectives toward AI-powered tools integration into EFL instruction were positive, they reported that these tools paved the way of teaching and learning process, through preparing lectures, raise students' motivation, and facilitate the teaching-learning process generally, however the traditional method cannot be substituted.

**Q2:** Do you believe that Chatbots and mobile apps play a significant role in enhancing and facilitating the learning process for students?

Educators' responses defer, two of them believe that Chatbots and mobile applications play a pivotal role in enhancing and facilitating the learning process for students, while the other educator believes that depending on the strategies students use to benefit from these AI-powered tools and the way they approach them.

**Q3:** From your viewpoint, what significant disparities exist between traditional teaching methodologies and contemporary approaches? How do you perceive these differences?

The disparities between the two approaches traditional and contemporary as highlighted by educators are significant. Traditional methods often rely on teacher-centred teaching styles, and may not foster autonomous learning. In contrast, contemporary methods prioritise learners' agency and independence, motivating them to take control of their learning. In addition, it is difficult to evaluate students online, in comparison to traditional methods.

**Q4:** Could you recommend any specific mobile applications and Chatbots that you advise students to utilize for educational purposes?

Educators recommend a numerous mobile applications and Chatbots that students can utilize for their educational purposes, such as Co-pilot and Gemini offer help to students in different tasks, Duolingo for language learning (mastering the four skills), Magic School helps teachers with lesson planning, and Grammarly for academic writings.

**Q5:** Are mobile apps and Chatbots considered completely reliable and flawless tools for educational purposes in your assessment?

Educators agree that these AI-powered tools are not reliable because it is a man-made tool, it is impossible to be completely reliable and flawless.

**Q6:** In your opinion, do mobile apps and Chatbots contribute to increase student dependency, potentially making certain tasks challenging for them to accomplish independently?

Educators have similar opinions concerning students' dependency on AI-powered tools, in which the excessive use of these tools without control can make it challenging for students to accomplish different tasks independently.

**Q7:** As a university educator, do you incorporate Chatbots into your instructional methods within the classroom or during course preparation? If not, what are the reasons for this decision?

Educators show a favourable opinion on the traditional methods for facilitating the assessment rather than incorporating AI tools during course preparation. However, they can be helpful if the lecture required.

## **2.6. Interpretation of the Findings**

This part offers strong evidence to support the research questions and offers insightful information to verify the hypotheses. Additionally, in order to successfully accomplish the research's objectives and advance current knowledge in the field, the results of this investigation, which was carried out at Ahmed Salhi University Centre of Naama, are subjected to extensive examination and comparison. Furthermore, 46 students and 4 teachers from the English department were included in the study.

Based on the demographic data, the majority of participants were aged 19 to 24, with females representing the highest percentage. Regarding their previous experiences with AI technologies, the responses show a varied distribution within the sample. A significant number of participants reported having utilized these tools before, indicating a diverse range of familiarity and engagement with AI in their learning processes. This variation in experience levels provides a solid basis for analysing the current insights of AI into EFL instruction.

The findings indicate that while a majority of participants perceive AI integration in EFL instruction positively and believe AI can enhance its effectiveness, suggesting an overall support for AI in EFL instruction, but also highlight varied opinions on its specific benefits and effectiveness, indicating the need for further exploration and possibly more tailored AI solutions to address the diverse views of participants.

Furthermore, the questionnaire results indicate that participants have diverse experiences and opinions about using AI technologies for learning English. Many respondents find these tools convenient and enjoyable for learning, while others cite reasons such as the need for material access, lack of motivation, or a preference for traditional methods. This variety of perspectives highlights the complexity of integrating AI into language learning, emphasizing the necessity for further investigation and customized approaches to address the varied needs of students.

In the participants' responses regarding the potential challenges and benefits of integrating AI into EFL instruction, several insights emerged. Some students struggle with adapting to AI technologies due to their familiarity with traditional methods, while others fear that a lack of experience with AI could lead to misuse. However, some believe there are no significant challenges associated with AI integration. In terms of benefits, many participants ranked improving language proficiency as the top benefit of AI, with enhancing engagement and motivation also being a common preference. Personalized learning experiences were less frequently chosen as the top benefit, also immediate feedback on language skills and accessibility for self-paced learning were the least favoured.

The alignment between participants' views on the validity of AI integration into EFL instruction and educators' responses to interviews provides valuable insights. While some participants offered feedback, varying opinions emerged, with some expressing favourable views towards AI, citing its positive impact on learning experiences such as understanding difficult lectures and boosting motivation others still preferred traditional methods. Similarly,

educators generally viewed AI integration positively, highlighting its role in lecture preparation and student motivation, however, they emphasized the irreplaceability of traditional methods and underscored issues with their accuracy and effectiveness, particularly in the realm of online assessment. Despite these reservations, educators acknowledged the potential benefits of AI when used appropriately.

Participants were requested to recommend any tips for AI integration enhancement, responses highlighted various key points as follows; taking AI integration in EFL instruction seriously, advocating for its permanent utilization in classrooms by both teachers and students, and encouraging active engagement with these technologies. Emphasising the importance of prioritising the accessibility to materials at anytime and anywhere, personalized learning that can be adapted based on the student's interests and needs, and finally granting motivation as well as encouraging students to interact during classes.

## **2.7. Pedagogical Suggestions and Recommendations**

Depending on the insights obtained from both primary and secondary data, this research offers a number of pedagogical suggestions and recommendations for the successful integration of AI in EFL instruction:

- Introduce AI-empowered tools to students and teachers and their benefits in EFL instruction, for instance: Magic School which helps teachers plan their lectures, and Duolingo that helps in language learning.
- Provide professional training for teachers to make them familiar with AI tools for effective integration.
- Employ AI in language assessment tasks such as pronunciation evaluation and testing language proficiency.

- Integrate Chatbots and language learning applications for interactive language practice that motivate students to have conversations, Example: Lingua Bot, an interactive language companion for engaging and immersive conversational practice.
- Use various AI-empowered tools for better results, such as providing students with diverse learning experiences.
- Support the use of AI in lecture planning to address students' needs and interests.
- The regular use of AI-empowered tools by both students and teachers inside the classroom.

## **2.8. Research Limitations and Restrictions**

This research encountered several limitations and restrictions which negatively affected the findings and the overall research process. Firstly, insufficient time prevented the attainment of optimal results. Secondly, the questionnaire was not fully completed by all participants-some answered only one or two questions or gave answers out of context, while others did not respond at all, indicating a lack of willingness to participate. Additionally, unforeseen circumstances and the tight schedules of the teachers hindered the interview process. Only one teacher was able to participate in person, so the interview was distributed via email, resulting in just three teachers responding to the interview questions. Lastly, the research study was hindered by limited resources, as most relevant books and articles were either paid or inaccessible.

## **2.9. Conclusion**

In conclusion, this chapter has provided an inclusive and detailed overview of the research methodology used to investigate the research questions. It determines the research objectives, research design, data collection instruments, and the analysis and interpretation of the main findings. The chapter concludes with pedagogical suggestions and recommendations for effectively integrating AI in EFL instruction, as well as the limitations and restrictions that have faced the research process. The research questions and hypotheses have been confirmed through the data collected from 46 students and 4 educators. There is great acceptance and support for AI integration in EFL instruction, although there is some concern and fear about the misuse of AI in EFL instruction and a lack of experience.

# **GENERAL CONCLUSION**

## **General Conclusion**

This study aimed to discuss the effective integration of AI technologies in EFL instruction and their contributions to ameliorate language proficiency among EFL learners. Through investigating the previous experience with AI technologies, identifying their effectiveness in improving language proficiency, and identifying the challenges faced during the process of integrating AI technologies into EFL instruction.

The findings showed that the majority of participants have a positive perspective on AI incorporation in EFL instruction and that it can enhance the effectiveness of EFL instruction, however, there was a variation in opinions about the specific AI benefits and overall effectiveness. On the other hand, a minority preferred the traditional methods, due to the struggle faced to adapt to AI tools and lack of experience, expressing concerns about the misuse of these technologies. These issues highlight the potential challenges faced during AI integration in EFL instruction.

To overcome the challenges encountered during this integration process, it is crucial to provide professional training for teachers. This training should focus on familiarizing educators with AI technologies, its different tools and their features, and their regular use during classes. More importantly, guide teachers on how to select the suitable and appropriate tools that meet the students' needs and interests and how to use them for assessment and evaluation. Additionally, encouraging students to use these tools under supervision to accomplish their tasks.

A set of recommendations and suggestions are proposed, such as introducing the AI tools to students and teachers and their benefits; providing professional training to teachers; integrating Chatbots and language learning applications for interactive practice; employing AI in language assessment tasks; and regular use of these tools inside the classroom.

This research has shown the positive outcomes of integrating AI into EFL instruction while also highlighting the different views on its advantages and obstacles. Despite the positive feedback, the integration challenges and the lack of familiarity among educators and students suggest areas that need further consideration. Future research inquiries should examine comprehensive training strategies to equip teachers with the necessary skills for the effective use of AI technologies. Additionally, it would be beneficial to investigate the specific features of AI tools that most effectively support various aspects of language acquisition and learning. By addressing these aspects, future research inquiries can enhance

the integration of AI in EFL instruction and overcome the current challenges, enhancing the educational landscape for both educators and learners.

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## Appendices

### Questionnaire

➤ The Case of 3<sup>rd</sup> year LMD at the University Centre Salhi Ahmed, Naama

Thank you for participating in this research study. The purpose of this questionnaire is to investigate the role of Artificial Intelligence (AI) in English as a Foreign Language (EFL) instruction. You are kindly requested to answer these questions because your input is crucial in understanding the potential applications of technologies such as Chatbots and language processing algorithms in EFL teaching and learning, and please give your most thorough response to the questions below.

1. **Please provide the following demographic information:**

- Gender:  GENTLEMAN  LADY
- Age: .....
- Previous experience with AI technologies (if any):

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2. **Please indicate your agreement with the following statements:**

- AI technologies can enhance the effectiveness of EFL instruction.
  - Strongly disagree
  - Disagree
  - Neutral
  - Agree
  - Strongly agree

## Appendices

- I believe incorporating AI in EFL instruction is a positive development.
  - Strongly disagree
  - Disagree
  - Neutral
  - Agree
  - Strongly agree
- AI tools, such as Chatbots, can provide personalized language learning experiences.
  - Strongly disagree
  - Disagree
  - Neutral
  - Agree
  - Strongly agree

3. **Have you ever used AI-powered tools for learning English? (e.g., Chatbots, language learning apps, etc.)**

- Yes
- No
- If yes, please describe your experience and mention specific tools you have used.**

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## Appendices

**If no, would you be open to incorporating AI technologies in your English language learning? Why or why not?**

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**4. Please rank the following potential benefits of using AI in EFL instruction from 1 to 5, with 1 being the most important and 5 being the least important:**

- Improve language proficiency
- Enhance engagement and motivation
- Personalize learning experiences
- Immediate feedback on language skills
- Accessibility for self-paced learning

**5. What challenges do you foresee in integrating AI into EFL instruction?**

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**6. In your opinion, how well is AI currently integrated into the EFL instruction (On a scale of 1 to 5)**

Rate: .../5

## Appendices

7. **What specific AI technologies or tools are currently being used in the EFL instruction for 3rd-year LMD students, if any?**

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8. **How do you think the integration of AI has impacted the learning experiences of 3rd-year LMD students in English language courses?**

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9. **Has AI contributed to your research proposal preparation process? In which way?**

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10. **What recommendations do you have for improving the integration of AI in EFL instruction for 3rd-year LMD students?**

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## Appendices

11. Are there specific AI features or functionalities you believe would be particularly beneficial for EFL instruction in the future?

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### Conclusion

Thank you for taking the time to complete this questionnaire. Your insights are valuable for the research on the role of AI in EFL instruction. If you have any additional comments or thoughts, please feel free to share them below.

## Appendices

### Educators' Interview

#### ➤ The Case of EFL Teachers at the University Centre Salhi Ahmed, Naama

**Interviewer:** Thank you for taking the time to speak with us today. We're interested in learning more about your perspective on the integration of technology in EFL instruction. Let's start with a few questions:

1. **Interviewer:** As an educator, what is your perspective on the integration of Chatbots or mobile applications in the teaching and learning process?
2. **Interviewer:** Do you believe that Chatbots and mobile apps play a significant role in enhancing and facilitating the learning process for students?
3. **Interviewer:** From your viewpoint, what significant disparities exist between traditional teaching methodologies and contemporary approaches? How do you perceive these differences?
4. **Interviewer:** Could you recommend any specific mobile applications and Chatbots that you advise students to utilize for educational purposes?
5. **Interviewer:** Are mobile apps and Chatbots considered completely reliable and flawless tools for educational purposes in your assessment?
6. **Interviewer:** In your opinion, do mobile apps and Chatbots contribute to increased student dependency, potentially making certain tasks challenging for them to accomplish independently?
7. **Interviewer:** As a university educator, do you incorporate Chatbots into your instructional methods within the classroom or during course preparation? If not, what are the reasons for this decision?

## ملخص

تهدف هذه الدراسة الى التحقق من مدى فعالية دمج تقنيات الذكاء الاصطناعي في تعليم اللغة الانجليزية كلغة أجنبية و مساهمتها في كفاءة اللغة. و استكشاف التحديات التي تمت مواجهتها، وكذلك الفوائد المكتسبة بعد دمج الذكاء الاصطناعي في تعليم اللغة الانجليزية كلغة أجنبية. تقترح الدراسة تدريباً احترافياً لاكتساب الخبرة و استعمال أدوات الذكاء الاصطناعي داخل القسم بانتظام.

## Résumé

Cette étude vise à évaluer l'efficacité de l'intégration des technologies d'intelligence artificielle (IA) dans l'enseignement de l'anglais langue étrangère (ELE) et son impact sur la compétence linguistique. Elle explore également les défis rencontrés et les avantages acquis suite à l'intégration de l'IA dans l'enseignement de l'ELE. L'étude propose une formation professionnelle pour acquérir de l'expérience et utiliser régulièrement les outils d'IA en classe.

## Summary

This study aims to investigate the effectiveness of the integration of AI technologies in EFL instruction and its contribution to language efficacy. It explores the encountered challenges as well as the benefits gained after the incorporation of AI in EFL instruction. The study suggests a professional training for gaining experience and the use of AI tools inside classroom regularly.