PEOPLE'S DEMOCRATIC REPUBLIC OF ALGERIA
الجمهورية الجزائرية الديمقراطية الشعبية
MINISTRY OF HIGHER EDUCATION AND SCIENTIFIC RESEARCH
وزارة التعليم العالي والبحث العلمي
UNIVERSITY OF ABBES LAGHROUR-KHENCHELA
جامعة عباس لغرور -خنشلة
DEPARTMENT OF ENGLISH
قسم اللغة الانجليزية

Teachers' and Students' Attitudes about the Integration of Artificial Intelligence in Academic Research Papers: Ethical and Moral Considerations

The Case of Teachers and Master Two Students at the Department of English, University of Abbes Laghrour -Khenchela-

Dissertation Submitted to the Department of English in Partial Fulfillment of the

Requirements for the Degree of Master in Language and Culture

Candidates

ATTALAH Bochra

GUELLAB Djihan

Supervisor:

Dr.YOUSFI Nabila

Board of Examiners

Examiner: Mrs. ATIK Imene.....University of Khenchela

President: Dr. AGOUNE Iman..... University of Khenchela

Supervisor: Dr. YOUSFI Nabila ..... University of Khenchela

2025

Dedication

I dedicate this work to:

My beloved family. To my father **ABDEREZZAK** and my mother; their support has always been a light to me. To my dear aunt **NOURA** and my sisters **SALSABIL, NOUR & AYA.** To my brothers **TAMIM** and **MOHAMMED**; your presence has been a source of strength.

I am especially grateful to my supervisor, **Dr. YOUSFI Nabila**, who made everything clearer and more manageable. Thank you for your efforts, kindness, and ultimate support.

Dedication extends also to my friend **Djihan**. Together, we carried every challenge, making the research easier. You gave me courage when I hesitated, stood by my side, and offered your endless support. I am deeply grateful for everything. Thank you.

I shall not forget my teachers **Hajer** and **Hadya**, whose kindness and endless support have meant so much to me.

I love you all.

This is another step toward my dreams.

ATTALAH Bochra

Dedication

Praise be to God, and blessings be upon the Prophet Muhammad, his family, and his faithful companions.

This work is wholeheartedly dedicated to:

The resilient souls of the **Palestinian people** and **children**, like olive branches in the wind, you bend but never break.

My parents **Queen Zina** and **King Salah**, your belief in me has been my greatest strength, and every challenge was easier with you by my side. I love you so much.

My cherished sister **Radhia**, and my esteemed brother **Akram**, who stood by me in ups and downs till my dream came true.

Dr. YOUSFI Nabila, your wisdom has shaped not just this dissertation, but the way I see the world.

My partner and sister **Bochra**, I am grateful for every challenge we tackled together.

The closest to my heart, all my friends, colleagues, family members, and neighbours, your laughter and encouragement have made this journey bearable and beautiful.

All those who have shared their knowledge with me, be it a single letter or an insightful lesson, thank you.

Future readers, the dreamers, the seekers, and the relentless pursuers of knowledge, I hope this work helps you in your journey. May it inspire you, please remember me in your Du'aa.

To the six-year-old me, YOU DID IT CHAMP!

GUELLAB Djihan

Acknowledgements

All gratitude goes to Allah almighty for giving us knowledge, strength, and patience to achieve this research.

We extend our deepest gratitude to our supervisor, **Dr. YOUSFI Nabila**, for her valuable proficiency, guidance, and insightful feedback throughout this research. Her contributions were crucial in the successful completion of this work, and we are profoundly grateful for her enduring support.

We extend our sincere gratitude to our examiner, **Mrs. ATIK Imene**, for her efforts, dedication, and the valuable time she committed to evaluating this research. We are deeply grateful of her supporting feedback, May Allah bless her. We would also like to express our sincere thanks to our president examiner, **Dr. AGOUNE Iman**, for her encouragement, which motivated us to pursue this research and transform it into reality.

We convey our sincere gratitude to all the teaching staff for their guidance and efforts throughout our academic journey. Special thanks go to the teachers who facilitated our focus group discussions; their kindness in sharing their time and invaluable insights profoundly enriched this research. We are deeply grateful for their ultimate kindness and support.

Abstract

The present study aims at investigating students' and teachers' attitudes towards the ethical and moral considerations associated with the integration of artificial intelligence (AI) in scientific research papers. The study employed a convergent mixed-methods approach, combining a questionnaire for assessing attitudes of EFL Master Two students and a focus group to gain deeper insights with teachers from Abbes Laghrour Khenchela University. The data obtained from the questionnaire were analyzed quantitatively qualitatively using IBM SPSS 21 while the focus group answers were analyzed using thematic analysis followed by SFL (Systemic Functional Linguistics) analysis. The results indicated that students have a positive outlook regarding the use of AI in research, highlighting its usefulness to enhance students' motivation, language skills, and research activities. However, they expressed concerns about the credibility and reliability of AI-generated results. Responses gained from the focus group demonstrated that while discouraging AI use in theoretical sections of students' dissertations to preserve originality, it is still useful in methodological tasks without affecting creativity and critical thinking. Teachers' suggestions regarding AI integration in research include incorporating ethical guidelines in institutions, human reviewing of AI-generated results, training programs and workshops about how to use AI responsibly, increasing cooperation and collaboration with foreign countries, and the rational use of innovative AI tools in academic research.

Keywords: Artificial Intelligence, ethical and moral considerations, scientific research, teachers' attitudes, students' impressions

List of Abbreviations and Acronyms

AI	Artificial Intelligence
ANI	Artificial Narrow Intelligence
APA	American Psychological Association
ARPANET	Advanced Research Project Agency Network
CALL	Computer-Assisted Language Learning
CD-Roms	Compact Disk Read Only Memory
Chatgpt	Chat Generative Pre-Trained Transformer
EFL	English as a Foreign Language
ELNs	Electronic Lab Notebooks
ENIAC	Electronic Numerical Integrator and Computer
GDPR	General Data Protection Regulation
GPT-4	Generative Pre-trained Transformer 4
ICMJE	International Committees Medical Journal Editors
IEEE	Institute of Electrical and Electronics Engineers
IRBs	Institutional Review Boards
JSTOR	Journal Storage
LMS	Learning Management Systems
MALL	Mobile-Assisted Language Learning

ML	Machine Learning
NGO	Non-Governmental Organization
NLP	Natural Language Processing
PCs	Personal Computers
PLATO	Programmed Logic for Automated Teaching Operations
SFL	Systemic Functional Linguistics
SPSS	Statistical Package for Social Sciences
VR	Virtual Reality
WW II	World War II
WWW	World Wide Web

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General Introduction

1. Background of the Study

Artificial Intelligence (AI) has emerged as a powerful force for innovation, revolutionizing fields, simplifying repetitive tasks, and addressing complex problems. This technological advancement has been particularly transformative in education and research, where AI tools have become essential in enhancing learning experiences, streamlining research workflows, and improving the efficiency of knowledge acquisition (Holmes et al., 2023). With its ability to simplify complex processes like data analysis, hypothesis development, and research paper creation, AI has become a key driver of progress and productivity in academia.

Nevertheless, the integration of AI into academic research raises significant ethical issues. While it offers substantial benefits, concerns have been raised about its potential to encourage unethical practices such as plagiarism, improper citation of sources, and overdependence on AI for academic tasks, all of which could undermine academic integrity (Cochran, 2023). Moreover, issues related to transparency, authorship rights, intellectual property, and the dependability of AI-generated content have prompted growing debate. A particular concern is the emergence of "ready-made science," a situation where AI produces outputs without the necessary human intervention or critical analysis that ensures scientific accuracy and authenticity (Uyan, 2023).

Recent research highlights the importance of addressing these concerns. For example, Sobaih (2024) discovered that AI-powered chatbots are widely utilized in scientific research in Saudi Arabia, but many researchers neglect to credit these tools, raising doubts about the reliability and credibility of their findings. Mahwish et al. (2024) also highlight the need to balance the advantages of AI with a strong commitment to maintaining research integrity. These findings emphasize the dual impact of AI on academia: while it accelerates progress and boosts productivity, it also poses risks to the ethical underpinnings of scholarly work.To

effectively integrate AI into academic research, it is crucial to make a balance between maximizing its potential and addressing its ethical and moral implications.

Despite the growing use of AI in research, there is limited literature regarding its ethical and moral implications and user perceptions. While previous studies have explored these concerns using qualitative method, this research aims to address them through a mixed-methods approach to provide more comprehensive and measurable results.

2. Statement of the Problem

The integration of AI in academic research has revolutionized data analysis, hypothesis generation, and the overall research process. However, this rapid adoption has also introduced a range of ethical and moral challenges that need to be addressed to ensure responsible and fair use of AI technologies. Despite the growing body of literature on AI ethics, there remains a significant gap in comprehensive guidelines and framework specifically tailored to the ethical and moral use of AI in research papers. This research aims to investigate these ethical and moral considerations, identify potential risks, and propose actionable recommendations to guide researchers in the ethical deployment of AI in their works so as to avoid misleading the scientific community toward issues like plagiarism, bias, copyright, and a loss of public trust in scientific findings.

3. Objectives of the Study

1. To investigate researchers' attitudes towards the use of artificial intelligence in their research papers.
2. To determine the ethical and moral risks associated with using AI in the creation of research papers.
3. To explore the actions needed to enhance the integration of AI in scientific research.

4. Research Questions

This study addresses the following questions:

A/ Main question:

What are the ethical and moral considerations associated with using artificial intelligence in the creation of scientific research papers?

B/ Sub-questions:

1. What are the attitudes of researchers towards the use of artificial intelligence in their research papers?
2. What are the ethical and moral risks associated with using AI in the creation of research papers?
3. What are the actions needed to enhance the integration of AI in scientific research?

5. Significance of the Study

The study aims to explore participants' ethical and moral perceptions, benefits, challenges, and the practical implications of integrating AI into academic research. AI has been used in many domains, especially in the field of scientific research and education. It is widely utilized by researchers, students, and teachers to facilitate various scientific tasks. With this technological development that has affected the field of scientific research, the ethical and moral problems that govern these fields have become imperative. For learners, understanding these ethical and moral dimensions fosters critical thinking and responsible use of technology, preparing them for future academic attempts in which learners are provided with knowledge to handle both the beneficial and adverse impacts of AI tools in academic research. Teachers benefit by gaining insights into the ethical and moral implications of AI, enabling them to guide students more effectively and integrate ethical and moral discussions into their curriculum. This study not only contributes to the existing body of knowledge but also promotes ethical literacy and integrity in academic research. Therefore, the present study may

add a valuable stone to the field of education in general and the field of academic research in particular.

6. Research Methodology

6.1. Research Design

This study adopts a convergent mixed method approach to collect comprehensive data on attitudes toward the use of AI in research papers. This approach ensures representativeness by combining quantitative data (measurable), and qualitative (in-depth) insights. This triangulation enables a thorough analysis of participants' proficiency in English, familiarity with educational technology, and perceptions regarding AI in research. A non-probability (purposive) sampling is used to ensure representation of the study population including Master Two students and teachers from Abbes Laghrour Khenchela University.

6.2. Research Tools

•Survey questionnaire: applied to Master Two students.

•Focus group: applied to EFL teachers.

Data will be collected through surveys and focus group. Surveys will help gather quantitative and qualitative data about attitudes while the focus group will have a set of core questions but allow for flexibility later to explore additional questions based on the participants' responses. Also, it provides in depth insights about the topic in hand. The two tools align with the research objectives.

6.3. Population of the Study

The study will focus on teachers and Master Two EFL students at Abbes Laghrour Khenchela University. These participants are currently conducting research in different areas. They were selected based on their advanced language proficiency as well as their research, writing, and reading skills, which are relevant to this research. Their expertise is likely to influence their attitudes and perceptions toward the use of AI tools in their academic research.

Understanding their perspectives at this stage is critical for optimizing and facilitating the smooth integration of AI technology into academic research.

7. Structure of the Research

This dissertation is divided into two sections: theoretical and practical chapters. The first chapter includes a review of technology instruments focusing on AI tools and the history of their integration in EFL classes. Furthermore, this chapter offers a literature review containing the ethical and moral considerations of using artificial intelligence in EFL classes. The theoretical section also explores the integration of AI in academic research papers and its ethical challenges.

The practical part of this research touches upon the elements relevant to the applications of the study. It involves data collection methods such as survey and focus group discussion, as well as the analysis of the data obtained. This section will present the findings on the attitudes of Master Two EFL students and teachers toward the use of AI in academic research. Based on these findings, the conclusion and recommendations will offer practical guidance for optimizing and ensuring the smooth integration of AI tools into academic research.

Chapter One

An Overview of Technology and Artificial Intelligence in Academic Research

Introduction

This Chapter includes a comprehensive overview of the integration of artificial intelligence in education and scientific research, encompassing the use of technologies, AI tools and Chatbots. These tools are currently common in educational institutions at all levels, enhancing learning processes in EFL education. This chapter also includes a dive into the subject of the ethical concerns of using AI tools in scientific research, its limitations and guidelines. Additionally, it explores AI's influence on students' language-learning experiences and academic research. With the rapid development of AI, especially in academia, institutions and universities are seeking to set new policies to guide students' application for AI in academic research and in EFL classes as well.

1.1. Technological Evolution in Academic Research and Education

The integration of technology into scientific research and education helped in developing the creation, production, and application of knowledge. Over the recent generations, classic structures, effective research techniques, adapted learning methods, and global collaboration have been redefined via technological development. Digital tools and AI-driven methods have improved research procedures, and virtual platforms have expanded access to education. While technology enhances performance and accessibility, it also raises ethical and practical issues such as plagiarism. Moreover, the rapid technological advancements require perpetual skill-building, exerting demands on teachers and researchers to stay up-to-date with the evolving technologies.

1.1.1. The History of Technology Use in EFL Classes

Pedagogical techniques, clarity, participation and self-learning have been significantly

changed due to the integration of technology in EFL education. Technology has influenced the techniques through which language abilities are learnt and taught, starting from early 20th-century devices to today's advanced digital systems. This history of technology in EFL learning classes, may be divided into several periods of time, as each phase is defined by the emergence of innovative tools that have influenced the process of language teaching and learning.

Traditional EFL instruction has benefited from early technological tools, which have enriched teaching methodologies and effectiveness. The phonograph, presented in the late 19th century, offered authentic pronunciation models, addressing the absence of authentic auditory experience (Salaberry, 2001).In addition, blackboards and printed courses were prevalent, encouraging structured grammar-translation methods. In 1920s, Radio broadcasts expanded access to spoken English, particularly in regions lacking native-speaking teachers (Richards & Rodgers, 2014). These tools opened the path to future innovations although constrained by technological challenges and teacher-centric methods. After World War II (WW II), language laboratories achieved popularity, influenced by behaviorist norms that prioritize replication and practice improvement.

In 1957, Skinner's theory of behaviorism initiated the development of audio-lingual method, in which learners used tape recorders and headsets to engage in dialogue. Language laboratories facilitated repetitive practice of pronunciation and sentence structure, promoting precision but often overlooking interactive abilities (Chapelle, 2001).

Despite being criticized for their inflexibility, laboratories marked a significant transformation towards embracing technology in language education. The 1980s witnessed the emergence of Personal Computers **(**PCs**),** igniting the Computer-Assisted Language Learning (CALL) initiative. Initial CALL system, such as Programmed Logic for Automated Teaching Operations (PLATO), applied repetitive practice activities to enhance vocabulary

and grammar, resonating with cognitive theories of language learning (Warschauer, 1996).By the 1990s, the advent of the internet transformed CALL into a platform for authentic interaction. Email and online discussion boards facilitated global interactions, promoting socio-cultural learning (Kern & Warschauer, 2000).Multimedia CD-ROMs significantly advanced education using videos and engaging exercises, reinforcing both receptive and output skills.The 21st century presented extensive interconnectivity and mobile technologies, resulting in Mobile-Assisted Language Learning (MALL). Digital devices enabled access to applications such as Duolingo that transformed vocabulary learning into an engaging game (Godwin-Jones, 2011). Digital platforms like YouTube and Twitter evolved into spaces for language practice, merging structured and unstructured learning (Pegrum, 2014).

Virtual Reality (VR) and AI now provide immersive opportunities, allowing learners to simulate exploration of English-speaking settings or interact with AI chatbots (Blake, 2013). Contemporary EFL settings progressively adopt blended learning models, integrating in-person instruction with digital resources Learning Management Systems (LMS) such as Moodle streamline coursework, and video conferencing tools (e.g., Zoom) enable synchronous collaboration (Hockly, 2020). However, obstacles preserve, including technology gaps, incomplete teacher preparation, and concern about digital interactions reducing human connection (Stockwell, 2012).

The history of technology in EFL education highlights a relationship between innovation and teaching methods. Each technological phase from phonographs to AI has evolving educational needs but introduce, at the same time, new challenges. Hockly (2014)believes that with this advance, technology will influence and be used in the EFL classes in the future.

1.1.2. Emergence and Use of Technology in Academic Research

Academic research has always been essential to cognitive progress, especially with emerging methodologies related technological progress. From the start of the printing press to

the advent of machine learning, technology has transformed accessibility to information, analyzed data, and shared their results. The historical improvement of technology in academia has appeared before the digital age to nowadays, addressing main improvements and their influence on research practices.

Before the technological era, essential framework was established for organized academic inquiry. Johannes Gutenberg's printing press (circa 1440) transformed the knowledge sharing by enabling extensive production of academic literature, therefore supporting the Renaissance's intellectual awakening (Eisenstein, 1980). By the 19th century, libraries started using index cards pioneered as part of evolving cataloging systems—systematized information retrieval (Krajewski, 2011) while the adoption of typewriters enhanced the speed and legibility of academic writing (Gitelman, 1999). Although these innovations extended access to knowledge, physical and geographical barriers such as limited library access and postponed distribution of printed materials remained prevalent (Eisenstein, 1980).

The Middle Twentieth Century was featured by the emergence of computers, indicating a revolutionary period. ENIAC (1945) was one of the mainframes that simplified high level calculations, developing fields like economies. Statistical applications, containing SPSS (1968), automated data analysis, enabling scholars to evaluate hypotheses with unrivaled accuracy (Dennis, 1996). Early data bases have automated literature indexing and enhanced the efficiency of academic reviews and research.

In the late 20th century, the internet became an essential tool in academic research. Advanced Research Project Agency Network(ARPANET), the antecedent to the internet, connected universities and research institutions, enabling real-time collaboration and resource sharing among geographical dispersed teams (Abbate, 1999). The World Wide Web (1989) univerlized access to data while search sites like Google Scholar (2004) simplified resource finding. Digital archives such as JSTOR centralized peer-reviewed literature, significantly

reducing reliance on physical library collections (Schonfeld, 2003). Email storage expanded international academic collaboration, allowing international research teams (Hiltz & Turoff, 1993).

The current academic landscape is being transformed by data-driven insights, especially with AI advancements and the expansion of open-access platforms. Learning algorithms analyze large datasets, exposing unseen correlation while free-access depositories such as arXiv disrupts traditional publication processes, advancing equal access to knowledge. Citing tools (e.g., Zotero) and collaborative platforms (e.g., Slack) emerged to elevate process efficiency (Jordan & Mitchell, 2015).

Technology has influenced academic research by advancing accessibility and fostering new forms of collaboration. As Borgman (2007) observed, every invention, from the printing industry to AI, has highlighted existing barriers while introducing new obstacles. As scholarly institutions explore the challenges of extensive data and globalization, ethical awareness and accessible policies will confirm technology persistence as a power for balanced scholarly progress. Future academia will likely rely on balancing productivity of automation with the invaluable worth of human's cognitive analysis(Borgman, 2007).

1.1.3. Benefits and Drawbacks of Integrating Technology in Research Paper

The integration of technology into scientific research has transformed academic interaction, data analysis, and methodologies. Innovations such as AI, automated learning, extensive data analysis, and distributed computing have advanced innovations and presented new obstacles. These technologies raise perspectives about data reliability, ethical considerations, and balanced access while they also enhance productivity, alliance, and availability.

Technological improvements have greatly enhanced the range and accuracy of data collection. Large-scale arrangement and automated scientific platforms enable researchers to

collect large datasets that were uncontrollable (Singh et al., 2020). AI learning systems aid in data recognition and predictive analytics, reducing human mistakes and fastening analysis (Jordan & Mitchell, 2015). For instance, AI-driven tools in fields like biochemistry have achieved breakthroughs that once required decades of manual effort (Jumper et al., 2021).

These technologies, besides allowing researchers to focus on hypothesis formulation instead of repetitive tasks, also ensure validity. Digital platforms such as online platforms and cooperative software (e.g., GitHub, Overleaf) have deleted geographical barriers in scientific cooperation. Tools such as Zoom, Moodle, and Google Meet facilitate instant collaboration across international research groups, advancing multidisciplinary projects (Smith & Jones, 2019). Free-access journals (e.g., arXiv, bioRxiv) universalize knowledge distribution, enabling quick feedback and reducing publication obstructions (Tennant et al., 2016).

Technology elevates the reliability of studies by uniforming methodologies. Systems like Electronic Lab Notebooks (ELNs) and version-control confirm detailed recording experimental procedure, reducing uncertainties (McNutt, 2017). Figshare and Zenodo are Platforms that provide free access to data and code, allowing neutral verification of outcomes (Wilkinson et al., 2016). These practices adjust with the FAIR norms (Findable, Accessible, Interoperable, Reusable), maintaining scientific probability (Wilkinson et al., 2016).

The vast volume of data formulated via modern technologies endangers intimidating researchers. Without strong analytical guidelines, the uncritical use of big data exposes promoting misinterpretations, particularly when contextual or methodological rigor is neglected (Hiney, 2018). For instance, genetic research usually creates extensive datasets, demanding advanced high level computing skills that many scholars lack (Stephens et al., 2015). This imbalance encourages researchers to prioritize the volume of data over methodological rigor, accidently marginalizing hypothesis-driven examination, where focused, quality-based analysis is essential for meaningful discovery.

AI systems can preserve preferences present in training datasets. In healthcare research, unbalanced algorithms could fail to identify conditions in underserved population, declining health inequalities (Obermeyer et al., 2019). In addition, ethical concerns increase about data privacy, particularly in research requiring human participants. Uncontrolled use of genetic data threats violating confidentiality and informed permission (Mittelstadt &Floridi, 2016).

Although technological incorporation is intended to provide universal access to educational resources, disparities in infrastructure continue to perpetuate existing inequities. For instance, researchers in third-world countries lack foundation for advanced computational tools, stable internet, and funding required participating in data-intensive research a gap embedded in systemic underinvestment (Dutton & Piper, 2011). This digital divide reinforces inequality, privileging well-funded labs and stifling diverse norms in international science (UNESCO, 2021).

Excessive reliance on automated systems may reduce critical thinking and methodological rigor. Researchers might prioritize computational results over experimental validation, risking reproducibility crises (Baker, 2016). To illustrate, errors in AI-generated models may go unnoticed if scientists neglect manual verification (Bauer et al., 2019).

The integration of technology in scientific research produces imbalanced advantages in data processing, cooperation, and transparency (Kitchin, 2014). However, its defect including ethical concerns, data overload, and systemic biases demand careful control (O'Neil, 2016). Researchers have to prioritize ethical guidelines, fair resource allocation, and incorporative training to responsibly control technology's ability (Floridi & Teddeo, 2016). Balancing innovation will confirm that technological integration serves as a motivation for inclusive and scientific progress (UNESCO, 2021).

1.1.4. Artificial Intelligence in Academic Research

AI is changing academic research due to automating tasks, analyzing extensive datasets,

and creating new perceptions. Technologies like Natural Language Processing (NLP) and Machine Learning (ML) are changing how researchers guide scientific analysis. These developments convey competence and innovation, and also elevate key ethical and methodological perspectives.

AI deeply speeds up literature reviews, which was traditionally a lengthy process. NLP tools like IBM Watson and GPT-4 aid researchers scan thousands of articles, select main themes, and highlight knowledge gaps (Kimmons et al., 2021). For example, platforms like *Semantic Scholar* use AI to approve studies based on contextual analysis, reducing bias in source selection (Ammar et al., 2018).

AI simplifies integrated cooperation by connecting vocabularies and methodologies specific to different areas. Chatbots like *Research GPT* help group selection provide proposals or synthesize results across disciplines. However, platforms like Overleaf use AI to automate citation structuring and manuscript preparation. Virtual research assistants like Iris.ai improve cross-disciplinary communication by translating technical terminology, improving alliance between fields like sociology and computer science (Liang et al., 2023).

AI-driven tools allow hypothesis testing in computational modeling, reducing the need for physical experiments. For instance, Alpha Fold's protein-structure predictions have advanced medication discovery, saving years of lab work (Jumper et al., 2021). These tools, besides accelerating discoveries, also encourage resource-efficient research practices.

The future of AI in academia relies on balancing innovation with ethical concerns, synthesis models that combine human expertise with AI proficiency. Additionally, global collaborations are essential for developing inclusive AI tools that represent diverse linguistic and cultural perspectives.

In conclusion, AI has significant potential to enhance academic research by enhancing processes, allowing extensive analyses, and fostering collaboration. However, its ethical use

requires proactive measures to highlight its drawbacks. By integrating these principles, the academic group can employ AI as a power for balanced and transformative scholarship.

1.2. Ethical and Moral Considerations of Using Artificial Intelligence in Academic Research

Integrating artificial intelligence in academic research has transformed methodologies, the analysis of data, literature reviews, and formulating hypotheses. However, including AI in the research process addressed significant ethical issues that require careful examination. For that reason, the following section clarifies the ethical considerations of using AI in academic research.

AI systems often mirror biases present in their training data, resulting in distorted outcomes in academic research. For example, historically biased literature trained by language models may overlook marginalized perspectives or reinforce stereotypes (Buolamwini&Gerbu, 2018). In education, if computer programs are unfair when judging how students are performing in their studies, they can hurt students from certain groups and make learning gaps even bigger. For instance, automated essay-scoring systems trained on standard writing stylesmay give lower score to non-native speakers or students from diverse cultural backgrounds, reinforcing inequities in academic assessment (Hansen & Reich, 2020; Koenecke et al., 2020).

The unclear nature of many AI models opposes scientific transparency, a basic principle of academic research. Equal review depends on reproducibility; however, complex algorithms like deep neural networks usually lack interpretability. The Institute of Electrical and Electronics Engineers (IEEE) ethically aligned design framework underlines the need for explainable AI to construct trust and accountability (IEEE, 2019).

Scholars must completely document AI methodologies, allowing participants to assess validity and replicate findings. Researchers might intentionally or unintentionally submit

works generated by AI, due to its ability to generate visual content, texts, codes, or even images, which addresses risks in academic research. Establishments have to address works formed by intelligent systems (AI software), using policies of plagiarism, to advertise instructions for ethical usage. Identifying software, such as AI writing indicators, e.g., Turnitin, provides limited alternatives. However, it demands continuous revision to avoid false allegations (Turnitin, 2023).

Recent authorship principles, like those from ICMJE (International Committees Medical Journal Editors), eliminate AI from co-authorship, as accountability persists a human responsibility (ICMJE, 2023).Researchers should clearly report AI use in the methodologies to ensure human control of results, to support academic accountability, and to associate with ethical criteria for trust input(ICMJE,2023).

Over-reliance on AI tools reduces critical analysis of researchers and even methodological skills. However, automation simplified processes; academic institutions have to make balance between using AI effectively and raising students' ability to critically analyses AI-generated outputs. In addition, difference in access to AI tools between fully funded and limited funded universities risks widening academic bias. This highlights the need for policies to advance fair access to AI automations.

Ethical integration of AI into academia requires ethical control via collaboration among researchers, universities and policymakers. Addressing issues like algorithm bias, transparency, integrity conservation and reasonable resource distribution will allow the department to control AI advantages while safeguarding ethical norms. Continuous communication and flexible frameworks are important to guide this effective responsibility.

1.2.1. Definition of Artificial Intelligence

Artificial intelligence is an innovative system in computer science created to develop systems that have the ability to perform functions usually requiring human intelligence like

learning, solving problems, and taking decisions. Russell & Norvig (2021) said that: “AI is a powerful technology, we have a moral obligation to use it well” (p. 1037). As AI becomes deeply installed across sectors from healthcare and public policy to everyday activities, it is crucial to establish clear policies and their ethical boundaries.

Artificial intelligence involves a series of technologies designed to reproducing human cognitive competence. Narrow AI (or weak AI) illustrates systems made for specialized applications, such as translation, identification or productive analytics (Russell & Norvig, 2021). In contrast, general AI (or strong AI), which occurs hypothetically, would demonstrate awareness and variability similar to humans. ML, a branch of AI, authors systems to improve performance via determining variety in data. Techniques such as neural networks and deep learning are formed following the brain’s neural architecture (Goodfellow et al., 2016).These characteristics emphasize AI’s dual nature: It serves as both a source of innovation and an activator for challenges to human autonomy.

Lahmar and Ghezal (2024) Said that:

> According to the website of Google Cloud (n.d.), Artificial intelligence is a scientific discipline focused on constructing computers and robots capable of reasoning, learning, and doing tasks that often need human intelligence or involve data beyond human analytical capabilities. This definition focuses on the ability of the machines to mimic human intelligence in knowledge acquisition and processing information. (p. 28)

That means, AI refers to technologies designed to be similar and to mimic humans’ intelligence.AI takes different roles including forming decisions from medical evaluations and legal determinations, and it has activated debates about eroding human autonomy. Over dependence on AI causes reducing critical decision-making abilities (Floridi, 2019). For that reason, it becomes hard for users to take any decision without asking for its help.AI powered recruitment platforms, to clarify, could prioritize rapidity over equitable practices, which can

cause a total exclusion of human evaluation (Dignum, 2019). This goes counter to ethical policies that highlight augmenting and not replacinghuman capacities. After all, AI cannot creatively function as a human brain.

AI mechanism educated on historical datasets often enhances systematic biases because datasets may reflect societal inequalities and biased patterns.Prospective policing guidelines, using biased crime analytics, usually over-target minority categories (Angwin et al., 2016).Language models can also protect gendered stereotypes (Bender et al., 2021). AI systems can be biased because they learn from unfair data, what causes stereotype by treating persons unfairly.

1.2.2. Types of Artificial Intelligence and Their Academic Applications

AI has evolved into crucial innovation in academic research process, for it provides tools to elevate research, education, and executive tasks. AI systems are classified based on their abilities and purposes; each of these has a particular role in educational and research performance. The following are the main types of AI; narrow AI and general AI, and theoretical super intelligence with their radical use in academia.

- Narrow AI systems or Artificial Narrow Intelligence (ANI): are created for definite functions and operate within specified limits. Even though consciousness and self-awareness are absent in AI narrow systems, they are skilled in performing specific tasks. “AI is the issue of consciousness” (Russell & Norvig, 2021, p. 1036). For example, *Duolingo* helps students learning new languages via adapting their progress, while platforms like Gradescope use AI to help teachers in grading exams consistently (Russell & Norving, 2020).
- Machine Learning (ML): Algorithms that identify designs in data to make classification and categorization. Directed learning (e.g., regression models) and in-directed learning (e.g., clustering) are prevalent in academia (Russell & Norvig, 2021).

- Natural Language Processing (NLP): These are systems that include tools like ChatGPT, which provides analysis and develops human's language, helping with literature reviews and aiding with drafting papers and translation (Bender et al., 2021).
- Robotics: is a branch of science that deals with the design, construction, and operation, often including computer system for control, give feedback and process information. It is the science and technology of robots (Siciliano & Khatib, 2008).
- General AI (Strong AI): General AI, still a theory, would maintain human-like cognitive capacities, which include reasoning, flexibility across diverse activities, and emotional intelligence. While it does not exist as a true general AI, its creation is raising debates about AI's moral and societal implications in academic research (Bostrom, 2014).

Super intelligent AI: is a form of AI that exceeds human cognitive abilities in creativity, social skills and problem-solving. It could enhance itself leading to "intelligence explosion" (Good, 1965). This type remains speculative; researchers argue that super intelligence AI development may either solve global complex issues or raise serious risks, obliging ethical principles in advance (Yudkowsky, 2008).As Lahmar and Ghezal (2024) Argued:

> Super AI, is a type of AI that is only theoretical for now, and it is only of science fiction. It is claimed that once AI has achieved the general intelligence level, it will quickly learn at a pace so fast that its knowledge and skills will grow greater than that of humans. (p. 30)

1.2.3. Examples of AI Tools in Scientific Research Papers: Opportunities and Risks

AI is transforming scientific research by enhancing several areas. For instance, AI tools can make literature review more understandable; analyze data and academic debates, scan and summarize hundreds of academic articles. Additionally, AI-powered platforms are able to assist academic debates via creating arguments, simulating peer reviews and helping students refining their ideas and improve research's quality.

The rapid growth of academic publications has made traditional literature review progressively challenging and time-consuming. The artificial intelligence has emerged as a transformation tool for automating and enhancing literature review process. AI-powered literature reviews include Research Rabbit that uses AI to highlight connection between academic papers, Aiding researchers identify key studies. Its «Citation Pursuing» aspect facilitate discovery of main and new research by reducing dependence on keyword searches (Ferguson et al., 2023). Consensus applies vast language forms to reinforce verification from peer-reviewed articles. It inquires databases such as arXivto create evidence-based responses to research questions, like the influence of intermittent fasting on health while emphasizing opposing results (Lee & Patel, 2022). There is also the so-called Polyglot multimodal AI; it has the ability to examine images, texts, and even graphs in research papers, obtaining hidden variables for meta-analyses. It is able to correlate demographic data from more than 50 public health studies to form pandemic spread (Chen et al., 2024).

The integration of AI into education has transformed students' methods of writing and peer review. AI-powered tools provide real-time feedback, improve grammar and coherence, and foster collaborative learning by enhancing writing process and evaluation. The tools that can be effectively used to enhance writing quality and reviewing. These include*Trinka*'s domain-specific language forms which have the ability to correct mistakes of technical writing in STEM domains, confirming compliance with APA measures. Its plagiarism detectors cross-reference over 100 million publications, and it adapts the tone of abstracts to suit journal rules (Rao & Thompson, 2023). Also, *SciSpace Copilot* integrates ChatGPT-4 to clarify complicated methodologies in published papers. It aids simplify various equation solutions specifically in physics manuscripts, helping collaborative peer review (Hernandez et al., 2023).

AI tools such as *Research Rabbit*, *Trinka* and *Deep Seek* present the strong collaboration

between computational abilities and human creativity in research. Despite the necessity for ethical alterness, these innovations prepare for quicker interdisciplinary progress through intelligent automation.

1.2.4. Ethical and Moral Framework of AI in Scientific Research: Key Considerations

The integration of AI in scientific research is expanding, covering areas as drug invention and climate designing (Brundage et al., 2020). Although, AI develops efficiency and promotes innovation, it presents ethical difficulties that traditional research ethics guidelines struggle to highlight. Problems like algorithmic opacity, data privacy risks and also potential biases necessitate an ethical guideline.

Transparency is fundamental for ethical AI in scientific research. Several AI technologies, specifically deep learning models, perform as black boxes, complicating the interpretation decision-making (Rudin, 2019). Due to the absence of explanation ability, reproducibility is compromised, which is a core element of scientific discipline. To illustrate, when an AI-driven genomics review recognizes a biomarker for illness, researchers are asked to clarify the model's decision-making procedure to ensure the outcomes (Holzinger et al., 2022). Journals and grant providers must impose transparency norms, demanding researchers to admit training data, algorithmic settings, and approval methods.

Evaluation methods are essential to address mistakes or unexpected results of AI system. Opposite to human researchers, AI lacks the ability for ethical reasoning, transitioning responsibility to programmers, establishments, and even users (Floridi et al., 2018). A clear accountability process is vital, specifically in challenging fields such as clinical trials. To illustrate, an AI model in clinical research overlooks negative medical interactions, the responsibility should be assigned to the team that created and deployed the system. Institutional Review Boards (IRBs) have to expand their scope to review AI-driven protocols, confirming adherence to ethical norms, as the montreal declaration for responsible AI (2018).

Systems skilled on biased or incomplete data have the ability to sustain in scientific findings. To illustrate, algorithmic bias in scholarship selection, where historical gender disparities in data led a program to favor male applicants over female, because it was trained on biased data from the past. Similar issues have been documented in situations where biased training data perpetuates systemic inequalities (Noble, 2018). This shows how bias in technology can affect fairness in education and can hurt certain groups. Researchers should evaluate AI outputs for different effects across societal divisions, following the norms of distributive fairness (Mehrabi et al., 2021).

AI that depends on huge datasets raises confidentiality concerns, especially in research including human participants. For example, AI-driven cognitive imaging studies may accidentally expose sensitive health datasets (Price & Cohen, 2019).This raises a critical question: How can researchers protect their personal data while profit from AI's abilities?

Adherence with regulations as the General Data Protection Regulation (GDPR) is essential but limited; ethical AI demands integrating privacy by plan Values. Techniques like united learning, which distributes data processing, and differential confidentiality, which hides datasets, can alleviate risks (Abadi et al., 2016). Are researchers sufficiently making efforts to implement these protective techniques?

Researchers must acquire informed consent that directly addresses AI use to confirm participants' awareness about how their data will be used and archived. Cooperation and collaborative dialogue develop an ethical principle for AI in sciences which requires collaboration over disciplines.

Computer specialists, ethics experts, and field specific researchers must collaboratively create guidelines that make balance between innovation and ethical norms. To illustrate, climate scientists apply AI to form carbon emissions should collaborate with policymakers to confirm models to inform inclusive climate action (Cowls et al., 2021). Open-access

platforms that allow sharing AI tools and datasets are able to democratize advantages while encouraging responsibility via collective assessment.

AI's societal outcomes have to guide its integration into research process. While AI advances findings, it could interrupt employment in academic fields or focus power over tech proficient institutions (Bostrom, 2014). Public participation is essential to align AI studies with societal norms, to ensure transparency in granting sources and avoiding undue professional influence.

Integrating AI into scientific processes ethically necessitates prioritizing transparency, responsibility, fairness, and social progress, researchers should leverage AI's potential while preserving scientific integrity. Institutions, funding agencies, and policymakers must collaborate to encourage norms that reduce risks and encourage fair advantages. An ethical guideline established in shared human values will be crucial for effective navigating this transformative period.

1.2.4.1 Limits of Using AI in Academic Research

AI technologies as ML and NLP are changing academic research in different fields, containing social sciences, and climate studies (Brynjolfsson & McAfee, 2017).However, AI systems have essential boundaries that influence their reliability and use in academic discourse. These boundaries raise the technical issues, gaps in knowledge, and ethical challenges that challenge basic concepts of scholarly investigation.

The lack of transparency in AI is a major limitation. Many advanced forms, specifically deep neural networks, perform by generating results without clear justification (Castelvecchi, 2016). This ambiguity makes the peer review process more complex and reduces trust in AI driven results, especially in essential fields as education.

In academic research, data quality is crucial for maintaining credibility. Bias can distort outcomes. For instance, facial identification algorithms reflect racial and gender inequities

due to data imbalance representation in training datasets (Buolamwini& Gebru, 2018). Likewise, in sociological research, AI tools skilled in historically biased data might support stereotypes, as uniting population statistics with criminality (Noble, 2018).

Reproducibility is crucial for scientific validity; still AI forms consistently conflict to achieve this guideline. Variations in training criteria, performance settings, or software versions may generate variable findings (Haibe-Kains et al., 2020). To illustrate, a study made at 2020 found that only 15% of AI driven COVID-19 estimation models were generating due to unregistered code and data (Roberts et al., 2021).

Traditional perspectives of production and academic input do not exist due to the appearance of content generated using AI. Like GPT-4, it is able to write research paper and posing questions (Hosseini et al., 2021). Errors and plagiarism are challenging academia's ethical norms, which highlight human autonomy and responsibility.

The accessibility to develop AI tools often demands significant granting, framework, and technical expertise, favoring institutions in high-income countries (Ahmed, 2022). As an example, training large language forms costs millions of dollars, focusing power among tech corporations and elite universities (Bender et al., 2021).

This variation excludes researchers in resources limited areas, opposing with academia's ethics of integrative and cooperative progress. The incorporation of AI into academic research provides significant opportunities but demand careful execution. Institutions and granting agencies must distribute access to AI tools. Eventually, AI's role in academia must be guided by a dedication to discipline, fairness, and the precious addition of human curiosity.

1.2.4.2. Ethical and Practical Constraints of AI

AI technologies, such as ML and neural networks are gradually integrated into fields such as healthcare and finance (Russell & Norvig, 2021).While AI provides the assurance of larger productivity and creativity, its acceptance is limited by ethical issues and practical obstacles.

Ethical perspectives rise from AI's potential to cause damage through absence of transparency while practical challenges originate from technical ineffectiveness and resource inequalities.

AI systems are able to imitate societal biases due to defective algorithm forms like in biometric identification system, which has advanced error rates for both women and people of color, representing their underserved in training datasets (Buolamwini& Gebru, 2018).In crime control, policing tools focus on marginalizing communities, maintaining systemic imbalances (Eubanks, 2018).

The dependency of AI on extensive datasets increases privacy concerns. AI-driven healthcare analytics tools might reveal sensitive patient information, while data prediction can exploit personal data without approval (Zuboff, 2019). Regulatory guidelines like the EU's General Data Protection Regulation (GDPR) intend to reduce these challenges, but ethical AI model must prioritize privacy-by-default architectures, such as federated learning and differential privacy (Abadi et al., 2016).

The "black box" nature of many AI systems undermines clarity. When a robot car causes an accident AI misidentifies a growth, assigning responsibility becomes ethically challenging (Floridi et al., 2018). Transparent AI models, like legal guidelines clarifying liability for programmers and users are crucial to highlight these doubts (Rudin, 2019).

AI's automation potential menaces occupation in sectors like production and customer service, worsening economic imbalance (World Economic Forum, 2023). In addition, AI-driven content guidance systems can control public opinion, undermining representative processes (Pasquale, 2020). Ethical AI implementation should balance efficiency gains with protections for human autonomy and dignity.

AI technologies necessitate large, high-quality datasets, which are usually unrepresentative. In healthcare, structures built on data from wealthy nations might fail in resource limited settings (Rajpurkar et al., 2022). Moreover, the "garbage in, garbage out"

principle conveys biased or insufficient data produce inconsistent outputs, undermining AI's use (Marcus, 2018).

Costs Training expert AI designs demands significant processing capability and funding. Developing GPT-4, for instance, purportedly cost over $100 million, limiting access to tech giants and elite institutions (Bender et al., 2021). This resource reinforces global inequities, as third world countries lack the framework to compete (Ahmed, 2022).

Incorporating AI into current systems presents technical challenges. In production, AI-driven estimative maintenance demands upgrading old machinery with directors, which is expensive and time-consuming (Lee et al., 2020). Similarly, using AI in public field institutions often faces bureaucratic resistance and skill gaps among staff (Coglianese & Lehr, 2017).

AI systems often fail in variable conditions. Autonomous drones, for example, struggle in adverse weather, while medical AI may misinterpret due to insufficient training examples (Topol, 2019). Confirming robustness requires rigorous stress testing and human oversight to mitigate the dangers of failure.

Addressing the ethical and practical limitations of AI requires multifaceted strategies:

a. Regulatory Frameworks: Governments should impose standards for algorithmic transparency, bias mitigation, and data privacy, as proposed in the EU's Artificial Intelligence Act (2023).
b. Interdisciplinary Collaboration: Ethicists, developers, and policymakers should work together to create AI systems that align with societal norms (Floridi, 2022).
c. Investment in Education: Building AI literacy among developers and users confirms responsible application and critical thinking (Brundage et al., 2020).
d. Decentralized Innovation: Open-source platforms and public-private collaboration can universalise access to AI tools, reducing resource disparities (Cowls et al., 2021).

The ethical and practical constraints of AI highlight the need for principled adoption. While AI provides unequaled opportunities, its limitations—from biased outcomes to operational inefficiencies demand proactive governance and inclusive innovation. By prioritizing transparency, equity, and human agency, participants can use AI's potential while reducing its risks. Ultimately, the future of AI relies on balancing technological ambition with ethical responsibility.

1.2.4.3. Responsible Use of AI in Scientific Research

The integration of AI in scientific research has transformed numerous areas, such as personalized learning and automatic grading. However, its misuse can lead to biases, privacy issues, and a loss of public trust in scientific institutions (Brundage et al., 2020). Ethical usage of AI necessitates a balance between innovation and safeguards, ensuring alignment with the fundamental principles of scientific research: rigor, reproducibility, and societal benefit.

Transparency is crucial for responsible AI usage. Researchers must reveal how AI models are trained, validated, and deployed to ensure scrutiny and reproducibility. AI platforms are trained, tested, and used to allow others to check and understand the results. AI tools used to assess student performance but users should share information about students' training data, settings, accuracy, and validation metrics to enable fair review and independent verification (Haibe-Kains et al., 2020). Journals and funding bodies increasingly demand such transparency through initiatives like the FAIR Guiding Principles (Wilkinson et al., 2016), which promote data findability, accessibility, interoperability, and reusability.

Accountability ensures that researchers and institutions are responsible for AI outcomes. This involves creating audit trails for AI systems and protocols for addressing errors. For instance, when an AI tool in a 2021 oncology study misclassified tumor types, the research team documented the flaw, retracted the paper, and updated their model, highlighting the importance of accountability (Topol, 2019).

Systems trained on biased data can reinforce inequalities in scientific outcomes. A 2022 study found that AI models analyzing cardiovascular disease under diagnosed women due to male-dominated training data (Obermeyer et al., 2022). Responsible AI usage requires proactive bias mitigation through diverse dataset curation that ensures training data represent global populations. Algorithmic audits which regularly testing models for disparate impacts across demographic groups (Mehrabi et al., 2021). It is crucial to work with marginalized groups when creating AI, so this helps to find and fix unfair parts in the system. It must protect people's privacy and data. AI uses a lot of personal information, especially in areas like brain studies and education, which raise problems about permission and who owns the data. The GDPR mandates anonymization and user consent but responsible research goes beyond compliance. Techniques like federated learning, which trains models on decentralized data without transferring sensitive information, protect participant privacy (Abadi et al., 2016).

Reproducibility issues in AI research, such as difficulties in replicating student performance prediction models, highlight the need for consistent reporting methods in educational contexts (Trujillo et al., 2025). Responsible practices to improve transparency include using code and data sharing platforms like GitHub and Zenodo, which allow researchers to publish datasets, code, and pre-trained models. Pre-registration—stating research questions and methods before conducting AI experiments—can help reduce publication bias. Additionally, benchmarking using standard tests, such as those from the ML Reproducibility Challenge ensures accurate evaluation of AI systems. Beyond technical transparency, responsible AI also means aligning research with societal needs. Public distrust can grow when AI systems, like predictive policing tools, are used without community involvement or clear explanations (Eubanks, 2018).

The responsible use of AI in scientific research depends on a commitment to ethical

principles beyond technical efficiency. By prioritizing transparency, accountability, fairness, and public welfare, researchers can harness AI's potential while mitigating its risks. Collaboration among institutions, policymakers, and funders is crucial to enforcing standards, democratizing access, and fostering interdisciplinary dialogue. As AI evolves, its role in science must be anchored in the pursuit of knowledge that is both groundbreaking and equitable.

Conclusion

This chapter has demonstrated the profound impact of AI tools on education and research, particularly in EFL learning. With the widespread adoption of modern tools and the internet, guiding students in their use of technology and AI tools in education and academic research has become an absolute necessity. The integration of AI has revolutionized the educational process and scientific research, particularly in the realm of EFL, by affecting authority, originality, and student's skills and abilities. This transition is consistent with the previous research. Additionally, AI has grown rapidly, with OpenAI tools such as ChatGPT emerging as a significant tool in EFL Classes and scientific research.

Chapter Two

Research Methodology and Data Discussion

Introduction

This chapter represents the practical part of the research. It is dedicated to research methodology and design, and it exposes the different data collection tools and analysis instruments employed in this work. The chapter includes the quantitative and qualitative data gathered from the questionnaire administered to Master Two English Language students along with the qualitative insights gained from the focus group conducted with EFL teachers at Abbes Laghrour Khenchela University .This chapter aims to uncover researchers' attitudes toward the use of AI in research papers and to identify the ethical and moral risks associated with this use; thereby, enhancing the understanding of AI's workings, pedagogy, and technology integration and its ethical and moral implications.

2.1. Research Design

This study applies a convergent mixed methods methodology. This approach englobes both quantitative and qualitative data from the questionnaire and qualitative insights from the focus group. The objective behind choosing this pluralistic strategy of inquiry is to enhance the study's reliability and accuracy by assessing students and teachers' attitudes regarding AI integration in education and research, presenting a nuanced view that combines multiple perspectives. The convergence of both qualitative and quantitative data collection and data analysis within a single study enables the researchers to gain accurate findings that can be served in the future as reliable references.

2.2. Population

This study's population encompasses two primary categories: EFL Master Two students and teachers at Abbes Laghrour Khenchela University. Master Two students were selected due to their direct involvement in conducting scientific research, exemplified by the

preparation of their dissertations. Moreover; they demonstrate a high level of linguistic proficiency, considerable academic capability, and advanced expertise and knowledge about technological tools, which makes them perfect participants for inquiry into attitudes about AI in academic research. Similarly, the teachers were selected based on their willingness to share their perspectives on this topic. Since they have extensive experience in various language disciplines such as linguistics, didactics, translation, literature, and civilization, this enriches the discussion by providing insights into how AI is approached differently across these fields.

2.2.1. Sampling Size

The study involves 50 Master Two English students along with six teachers at the university, offering a comprehensive view of the intended demographic population. This selection is based on the accessibility to the participants and how closely their insights, views, and perspectives are aligned with the research topic. Moreover, including the entire group promotes inclusivity and helps avoid bias that might come from selecting only a sample, which can enhance reliability and accuracy of the study.

2.2.2. Sampling Technique

To gather relevant data, the researchers adopted a purposive sampling technique in selecting a targeted group of Master Two English students and teachers at Abbes Laghrour Khenchela University. This approach was deliberately selected because it allows the researchers to handpick participants who are most relevant to the study's objectives. In contrast to random sampling, which selects participants randomly and may include individuals without relevant experience or background, purposive sampling focuses on choosing people with particular expertise, roles, or traits that are closely related to the subject of the study. By choosing participants with these qualities, the researchers are able to collect richer and more meaningful information. This, in turn, strengthens the reliability and relevance of the findings, particularly as they apply to the Master Two English students and

teachers involved in the research.

2.3. Data Gathering Tools

The study employs one questionnaire to gather measurable data from Master Two students, their attitudes and perceptions while teachers participated in a focus group. The questionnaire captures quantitative and qualitative data on AI use and perception in addition to the degree of students' awareness while the focus group provides qualitative insights of teachers' perceptions regarding the way AI should be employed in scientific research. These tools enabled an extensive study of attitudes towards the use of AI in academic research among teachers and learners in EFL classes and enrich the analysis with diverse perspectives.

2.3.1. Students' Questionnaire

The questionnaire was employed to achieve the defined objectives of this study and solve the research questions. Surveys are often used to gather measurable data from a target population. The distribution of the questionnaire could be done face-to-face or online. Then, the data can be analyzed using a software program such as SPSS or Excel.

2.3.1.1. Description of the Questionnaire

The questionnaire (See Appendix A) was administered to Master Two EFL students at the University of Khenchela. It aims to examine their attitudes and awareness toward the use of AI in EFL classes and scientific research. The questionnaire is structured in the form of three sections: Personal Background, Artificial Intelligence in Education and Research, and Ethical and Moral Considerations of Using AI in Scientific Research. It includes both open-ended and closed-ended questions to gather qualitative insights and facilitate quantitative analysis. The questionnaire consists of 23 questions, eight of them are yes/no questions (Q1,Q5,Q7,Q9 ,Q10,Q13,Q14,Q16), ten of them are multiple choice questions (Q1, Q2, Q3, Q4, Q5, Q6, Q10, Q15, Q17, Q21), five of them are made in the form of a Likert scale (Q8, Q11, Q12, Q18, Q19, Q20) ,and two of them are open-ended Questions (Q22, Q23) .Students are

supposed to choose the response that most accurately reflects their opinions or feelings toward each statement and question.

The first section of the questionnaire contains four questions. It explores students' previous experience with technology in their learning process, and it includes the types of technology tools students are familiar with and commonly use. Moreover, it aims to explore how students were initially introduced to AI and the frequency of using it. This section seeks to highlight students' personal background regarding the use of technology and AI.

The second section contains nine questions. It includes questions on AI's effectiveness in language learning, its impact on learners' motivation, and the influence of AI on writing skills. It also explores the areas of education and research that benefit most from AI. Additionally, it explores the importance of AI in academic research. This section is dedicated to understanding and measuring the attitudes of students regarding the integration of AI tools and Chatbots in their learning process and academic research.

The last section of the questionnaire contains eight closed-ended and two open-ended questions. It explores students' awareness about the ethical and moral issues related to using AI tools in scientific research. The last two open-ended questions examine measures for ethical and moral AI usage (question 22) and Perception of AI's role in future research (question 23).Participants are asked to reflect on the ethical concerns, assess their level of trust in AI tools and results, and provide recommendations for responsible AI integration in academic research.

2.3.1.2. Questionnaire Administration

The researchers distributed the questionnaire to Master Two students via messenger group, where they normally discuss their studies as well as individually to each student in private discussion via social media platforms. The administration of the questionnaire took place during the Third week of March. All students were already familiar with the concept of AI,

allowing them to complete the questionnaire effortlessly with no further requires.

2.3.1.3. Questionnaire Analysis Procedure

The following is a quantitative qualitative analysis and interpretation of data collected with a questionnaire provided to Master Two students with the purpose of collecting their attitudes about using AI in academic research. The data provided in the pie charts have been generated by the IBM SPSS program version 21. The first part of the questionnaire provided to students is titled “Personal Background”. It aims to explore participants’ previous experience with using technology and AI in language learning. It contains a total of four questions.

2.3.1.4. Questionnaire Analysis and Interpretation

Section One: Personal Background

Question 1: Have you ever used technology in your language learning? If yes, how often do you use it?

The first question in the questionnaire aims to understand personal data and attitudes of EFL learners' previous experiences regarding the use of technology in their learning process. According to Figure 01, with the rate of 100%, all students have used technological tools in their language learning. This implies that all students are familiar with various technologies in the context of their EFL learning. Additionally, it indicates that they are receptive to adopt new technological tools in their learning process.

Figure 1

Previous Experience with Language Learning Technologies

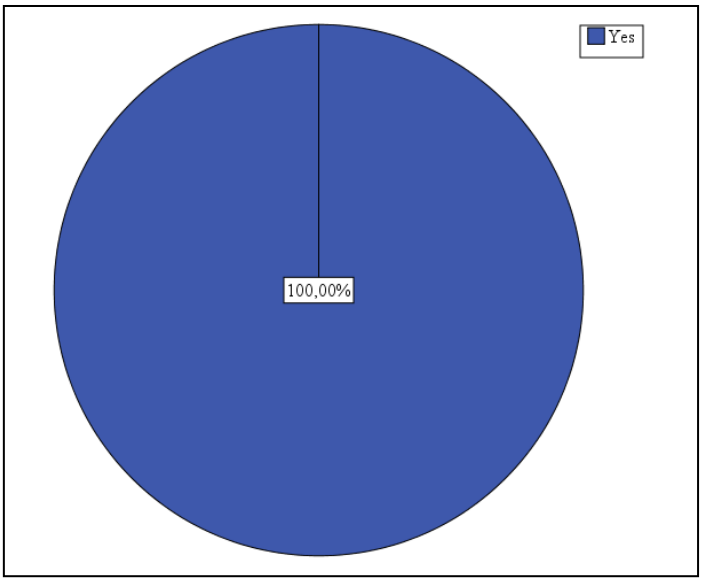
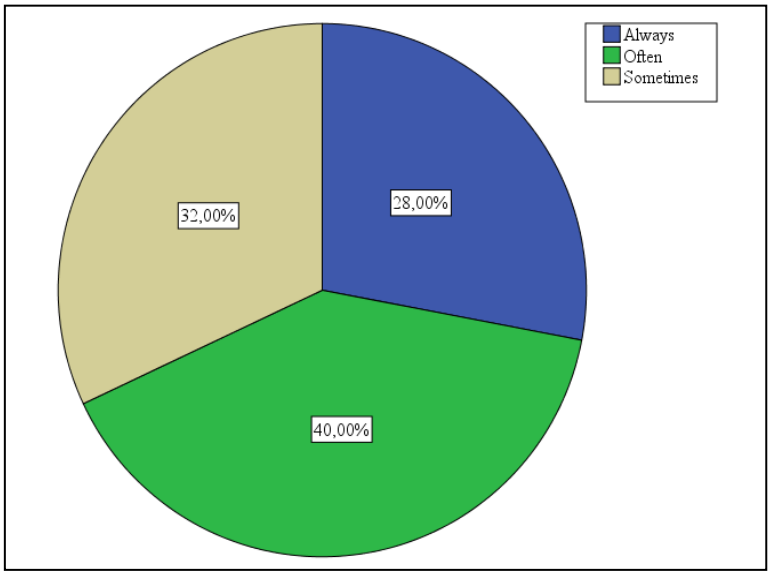


Figure 2 explores the frequency of technology usage among students. The chart indicates that the majority of participants (40%) often use technological tools while a smaller proportion (28%) always utilize them. However, there are no students who rarely use technology. These findings confirm that students recognize the significance of technology in both their personal lives and their learning process.

Figure 2

Frequency of AI Usage

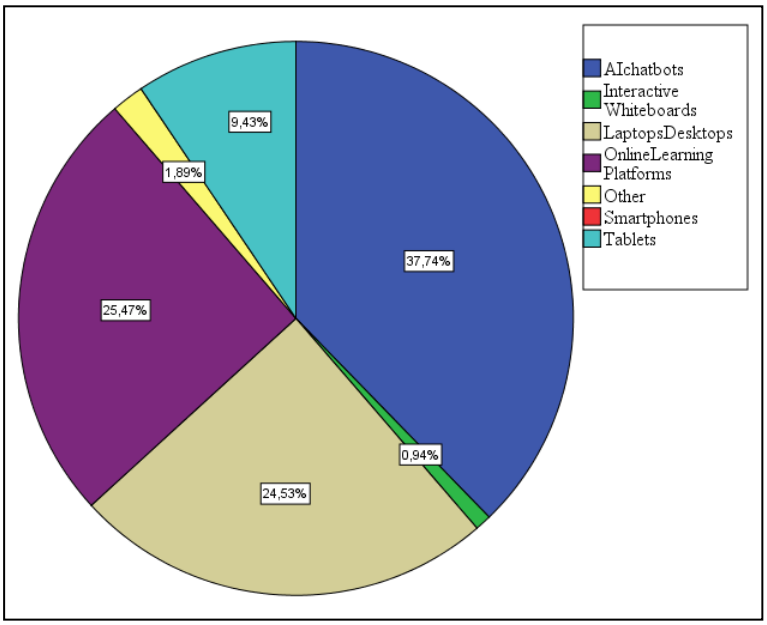


Question 2: Which type(s) of technology do you commonly use? (Select all that apply)

The next question presents the percentage of different types of technology that students have had an experience with. As indicated in Figure 3, the majority of participants, namely (37.74%) use AI chatbots, followed by both online learning platforms (25.47%) and laptops and desktops (24.53%). This indicates that most students are familiar with various modern technologies like AI tools, which makes their learning experience more enjoyable.

Figure 3

Types of Technology Used by Students



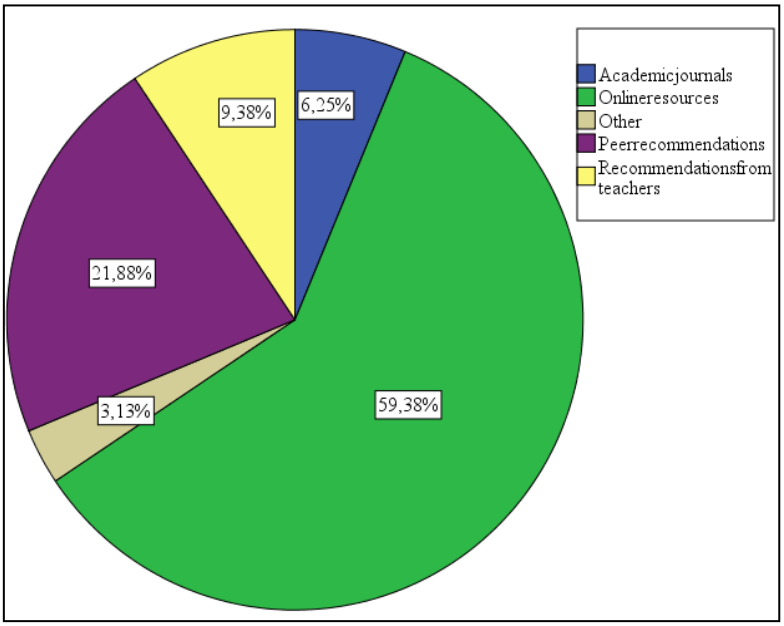
Question 3: How did you learn about AI tools for language learning? (Select all that apply)

Question three is a multiple-choice question that aims to explore the ways students have learned about and discovered AI tools. Figure 4 shows that online resources (59.38%) and peer recommendations (21.88%) are the most significant resources by which students become aware of such innovative technology and its applications. This highlights that online

platforms, such as social media, are highly effective in spreading awareness about different AI chatbots that are currently gaining popularity.

Figure 4

First Learning about AI Usage in education

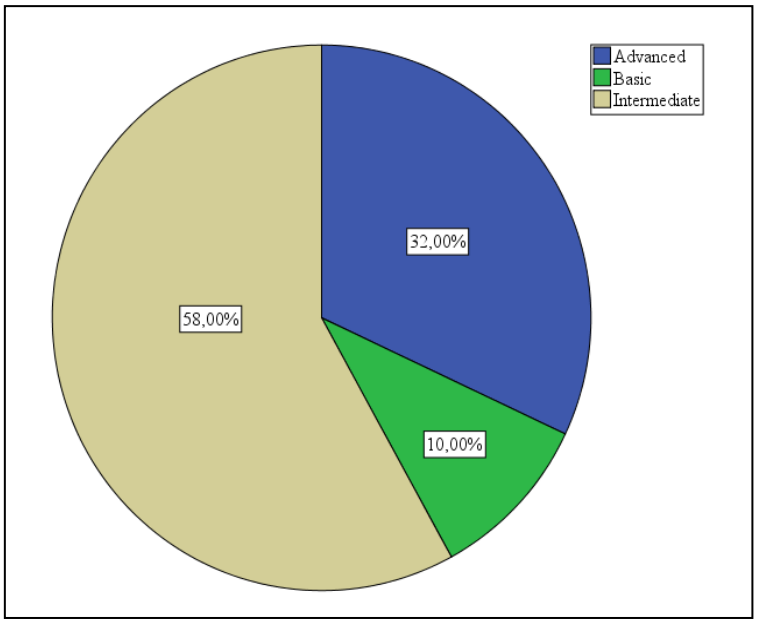


Question 4: How can you describe your previous experience with AI?

When asked to describe their previous experience with AI, the majority of participants (58%) stated that it is average and 32% of the whole sample described it as advanced. However, a small proportion (10%) admitted that their experience is basic. This suggests that participants' prior exposure to AI contributes to their personal experiences as well as their academic learning.

Figure 5

Previous Usage of AI



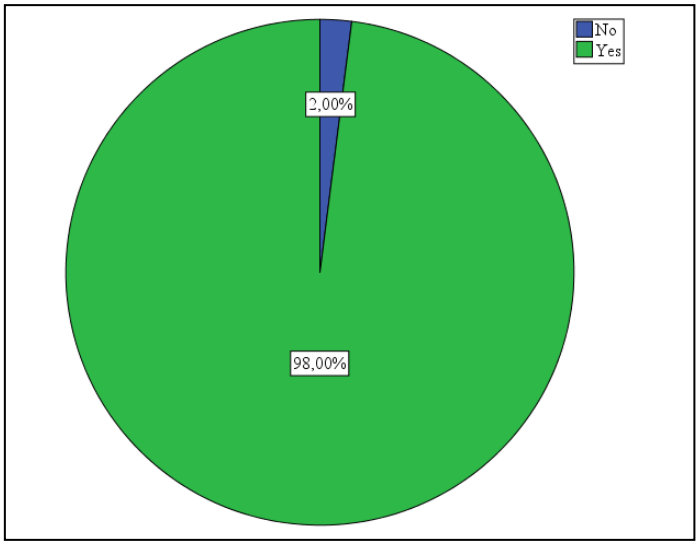
Section Two: Artificial Intelligence in Education and Research

Question 5: Have you used AI tools in your language learning process before? If yes, which AI tools have you used the most? (Select all that apply)

The second section of the questionnaire is about exploring the students' attitudes and thoughts towards the usage of AI in EFL classes and in research activities. Starting with the first question, when asked if they had used AI in their language learning process before, the bulk of the participants (98%) answered yes. This leads to the conclusion that students are adapting quickly to using revolutionary technology in their EFL learning.

Figure 6

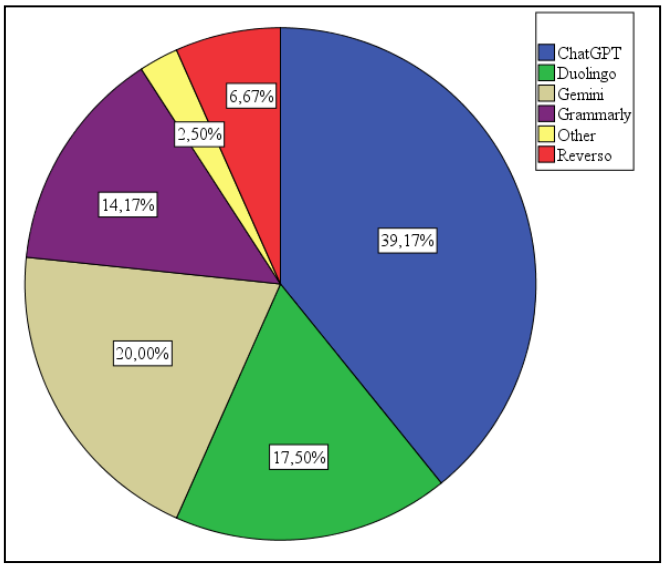
Previous Usage of AI in EFL Learning Process



As shown in Figure 7, (39.17%) of the study participants stated that they have used *ChatGPT*, followed by those who have used *Gemini* (20%), *Duolingo* (17.5%), and *Grammarly* (14.17%). A few participants mentioned other tools, such as *Deepseek*, *Bing Bot*, and *Perplexity*. These choices and preferences may be due to the high interactivity of these tools and their ability to provide quick and reliable feedback.

Figure 7

AI's Language Learning Tools Used by Students

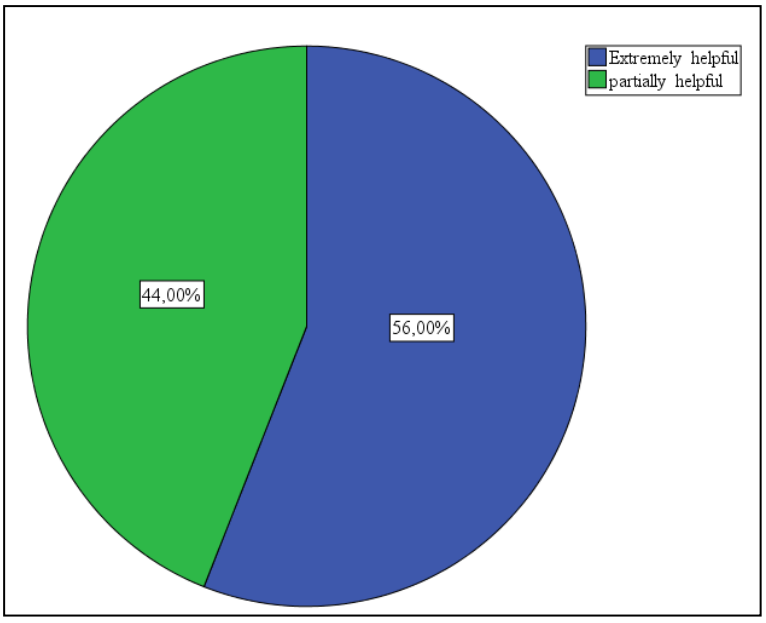


Question 6: How helpful do you find AI tools in enhancing your EFL learning experience? If it is helpful, which language skill(s) does it enhances the most? (Select all that apply)

Regarding the above-stated question, the majority of participants corresponding to 56% agreed that AI is extremely helpful while 44% of students found it partially helpful in enhancing their EFL learning experience. This indicates that AI is proving to be a viable tool for enhancing students' academic experience. Furthermore, it shows that all students were able to utilize such tools effectively and found them beneficial.

Figure 8

Helpfulness of AI in Enhancing EFL Learning

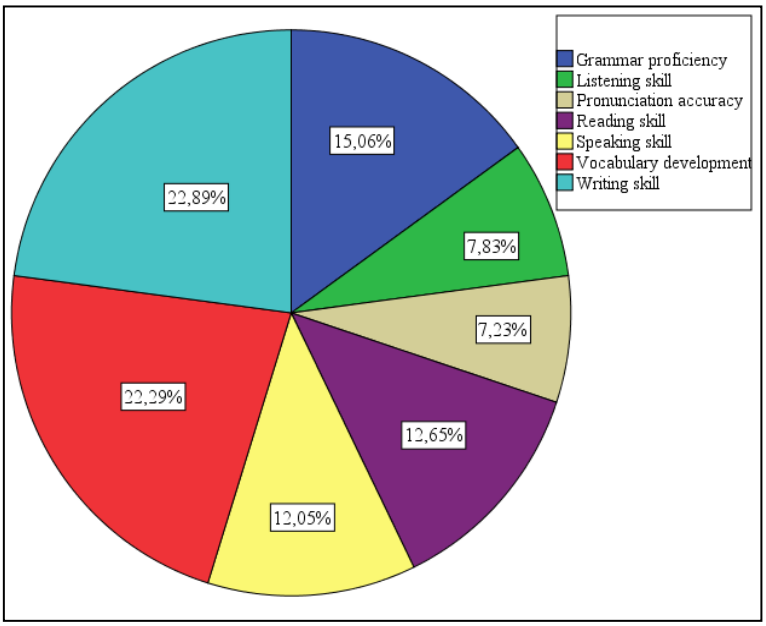


Interestingly, the sub-question aimed to identify the language skills enhanced through the use of AI tools. Numerical results pertinent to this question show that a considerable number of students answered in favor of both “Writing” (22.98%) and “Vocabulary” (22.29%), indicating that AI excels most in these areas. These are followed, respectively, by grammar proficiency (15.06%) and, to a lesser extent, reading and speaking. This suggests that AI tools have a more significant impact on constructing linguistic pieces, learning new words, and

producing correct sentences compared to other skills such as speaking, reading, and listening.

Figure 9

Language Skills Enhanced by AI Tools

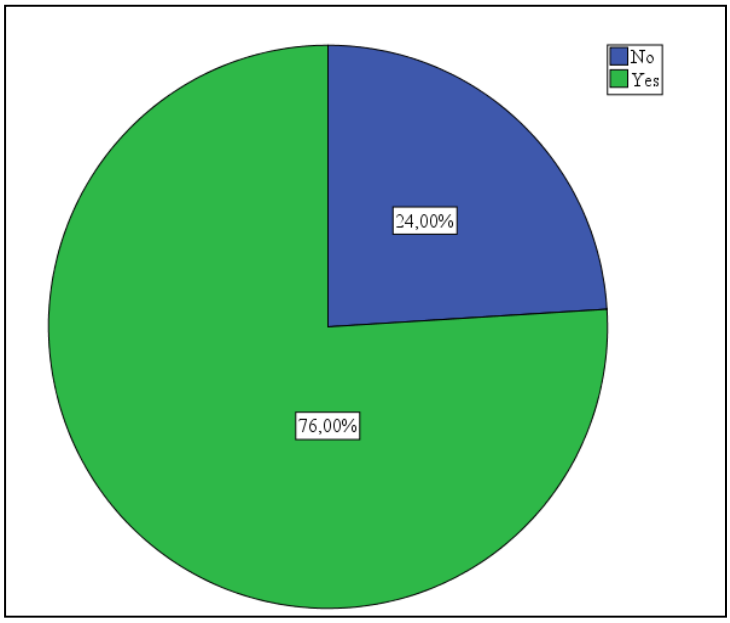


Question 7: Do you believe AI can enhance motivation in education?

One key question in the study investigates if students think that AI could enhance their motivation during their EFL learning process. The responses provide valuable insights into their views. Figure 10 reveals that 76% of participants expressed a positive view concerning AI's potential role to enhance their motivation to learn while 24% answered the opposite, believing that AI could not enhance it during the learning process. This indicates that most students consider AI an important tool for raising their attention, making education more enjoyable, and promoting their appreciation for the learning process.

Figure 10

The Influence of AI on Students' Motivation

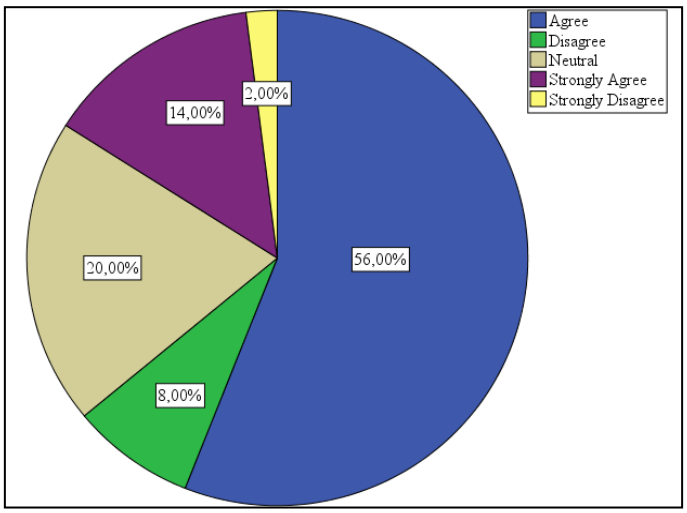


Statement8: AI tools significantly improve the language skills of EFL learners.

Regarding question eight, students were asked, on a Likert scale, whether they agree or disagree with statements about the usefulness of AI usage on enhancing language skills. Most of the responses are divided between neutrality and agreement. Figure 11 shows that a majority of participants (58%) agreed that AI tools significantly enhance language competencies, and 10% strongly agreed with this statement. This means that most students perceive AI as a reliable tool for improving language skills. However, 24% of participants remained neutral, which indicates that they are either unaware of the benefits that AI tools have due to limited experience, or they are unsure about the various impacts of AI tools on language skills.

Figure 11

Usefulness of AI Usage on Enhancing Language Skills

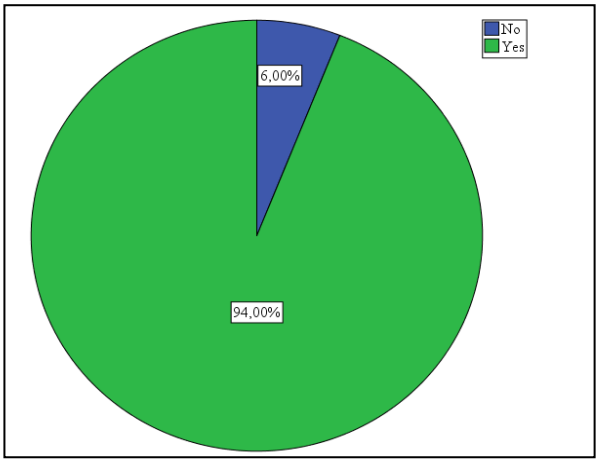


Question 9: Do AI tools help you to improve your academic writing skills?

The next question asks whether AI helps participants improve their academic writing skills. As shown in Figure 12, 94% of the study participants stated that AI helps them. This indicates that AI is proving to be an effective tool for enhancing students' academic writing competence. On the other hand, 6% of the participants disagreed. This suggests that, as AI is a relatively new tool, participants have limited opportunities to engage in academic writing using it.

Figure 12

Helpfulness of AI in Enhancing Academic Writing Skill

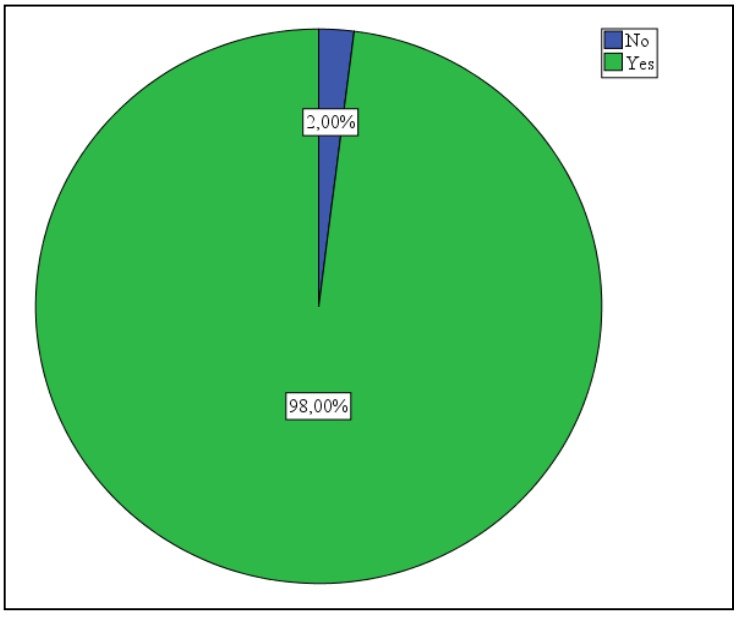


Question 10: Have you used AI tools in your own research before? If yes, which area(s) of education and research benefit most from AI? (Select all that apply)

The aim of this question is to determine whether students have previously used AI tools in their own research. According to Figure 13, an overwhelming majority of the participants, with a percentage of 98% responded with 'Yes' while only 2% answered 'No.' These results indicate that most students are incorporating AI tools into their academic research, which reflects their high acceptance and use of AI tools in this context. The small percentage of students who have not used AI tools may represent those who either have no previous experience, are unfamiliar with such tools, or prefer traditional methods to accomplish their research work.

Figure 13

Previous Usage of AI in Academic Research

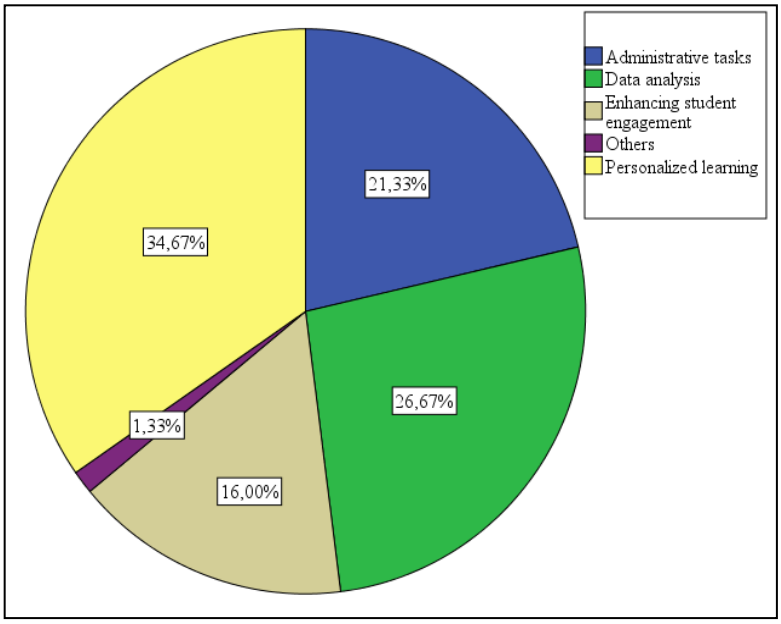


In the context of education and research, Figure 14 highlights key areas where AI is beneficial the most for education and research. Personalized learning ranks highest (34.67%), followed by data analysis (26.67%) and administrative tasks (21.33%) while student

engagement ranks lowest (16%). The findings suggest that AI enhances autonomous learning by helping students organize their EFL learning experience and save their time and efforts. It also plays a significant role in data analysis by enabling efficient interpretation of information during the research process. Additionally, AI streamlines administrative tasks, improving efficiency in scheduling, grading, and resource management. Despite AI's role in student motivation, its lower ranking in engagement implies that while AI stimulates interest, meaningful engagement in education still requires human interaction and traditional learning methods.

Figure 14

Key Areas of AI Benefits



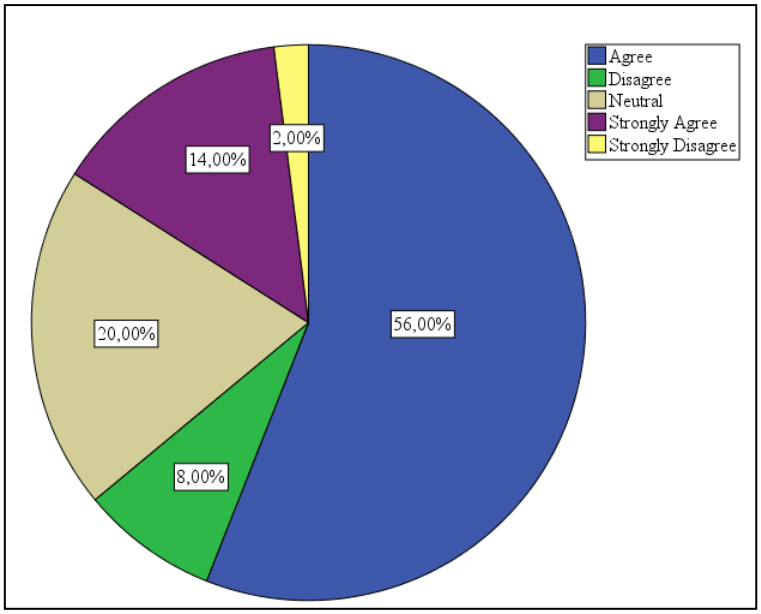
Statement11: Integrating AI tools into research activities is important and necessary.

Question eleven presents the statement "Integrating AI tools into research activities is important and necessary." The results show that more than half of the participants (56%) believe that integrating AI tools into research activities is necessary. Additionally, 14% strongly agree with this statement. This indicates a high acceptance of AI's role in research,

emphasizing its important contribution to improving research activities. On the other hand, 20% of the participants remained neutral, which could imply that they are unsure about AI's benefits in research or a lack of previous experience with this tool. Meanwhile, 8% of students disagreed, possibly due to fears about ethical issues or the preference for traditional research methods. All in all, participants are gradually made aware of the focal role that AI plays to shape and support academic inquiry.

Figure 15

Learners' Attitudes about the Integration of AI Tools into Research Activities

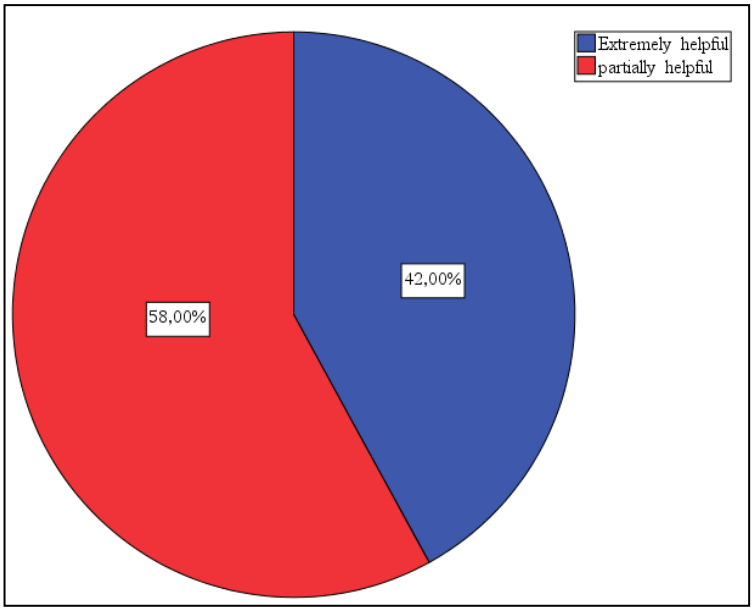


Question 12: How helpful do you find AI tools in your research process?

This question aims to explore if using AI in scientific research is helpful to EFL learners. The figure below indicates that most of the participants (58%) find AI partially helpful, which indicates that while AI tools have some benefits, they may still have some drawbacks. However, 42% of the participants consider AI tools extremely helpful. This shows that nearly half of the students' sample view AI as a valuable tool in their research process, which reflects AI's significant impact in facilitating research. Notably, no one has chosen "not helpful", which may confirm that all students recognize at least some benefits of AI in research.

Figure 16

Helpfulness of AI in the Research Process

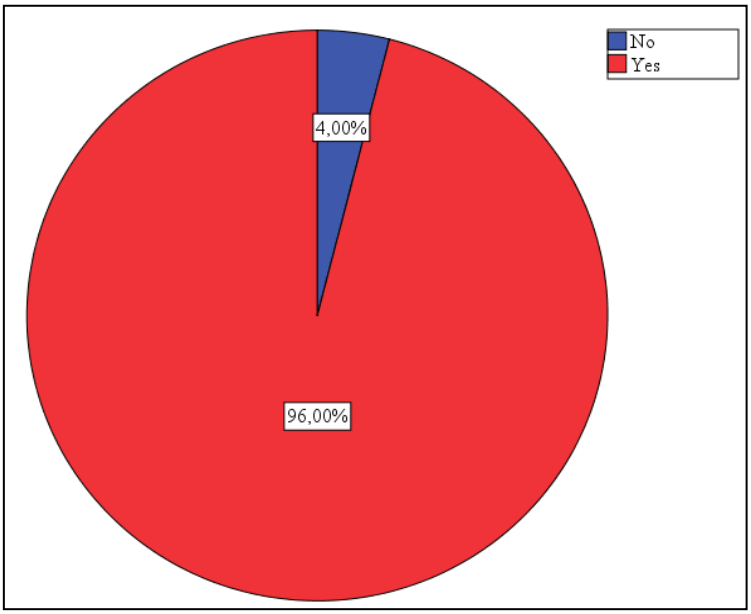


Question 13: Would you recommend the use of AI tools to other EFL learners?

Another question was asked to determine whether students would recommend the use of AI to their colleagues. Figure 17 shows that nearly all participants (96%) responded that they would recommend AI to other EFL learners. This suggests that most students find AI highly useful in their EFL learning and research, prompting them to encourage other students to use it as well. However, only 4% of the participants expressed the opposite view. This may indicate that AI either negatively impacts their learning, that they are unaware of its usefulness, or that they have had limited access to AI tools.

Figure 17

Recommendation of AI to other EFL Learners



Section Three: Ethical and Moral Considerations of Using AI in Scientific Research

The third and last section of the questionnaire is about exploring ethical and moral considerations of using AI in scientific research. It contains eight closed-ended questions along with two open-ended questions to gain insights about this topic.

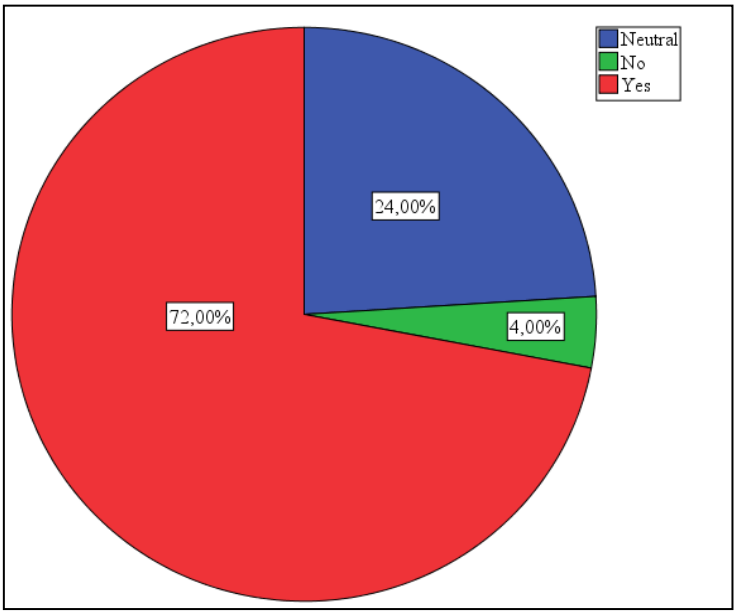
Question 14: Are you aware about the ethical and moral issues related to using AI tools in your scientific research?

Starting with the first question, it aims to explore the awareness of students regarding the ethical and moral considerations of using AI in scientific research. Surprisingly, the pie chart from Figure 18 illustrates that most of the participants (72%) claimed that they are aware of different ethical and moral considerations, suggesting that discussions on AI's ethics are increasingly integrated into student learning, while only a small fraction (4%) are not. This could imply either a limited experience with AI's ethical and moral use or uncertainty about its implications. However, a significant number of participants (24%) remain neutral. This neutrality may indicate that students may have some knowledge of ethical concerns, but they

are unsure of their significance in research. It could also suggest that some students have not yet engaged deeply with AI ethics and moral in their academic work.

Figure 18

Awareness about the Ethical and Moral Use of AI in Scientific Research

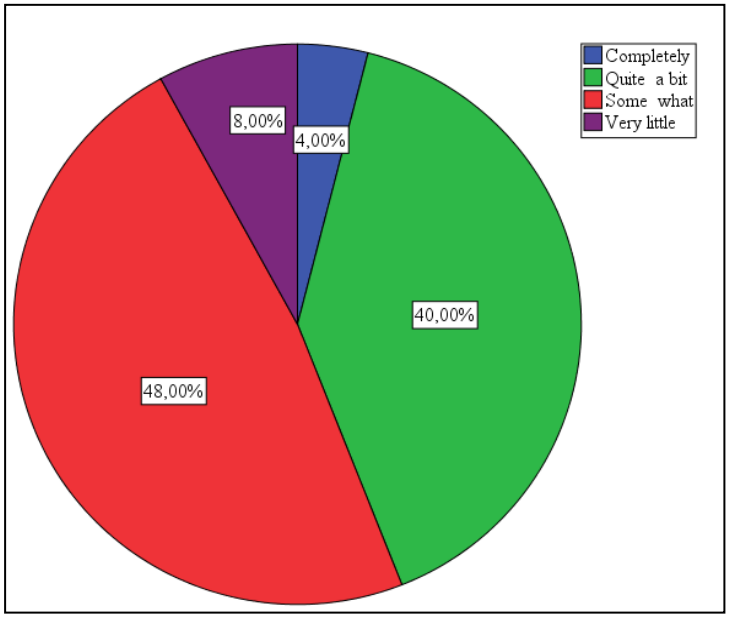


Question 15: How much do you trust AI feedback and output?

When it comes to AI feedback and output, the level of trust varies from one participant to another. The data summarized in the figure below indicate that the majority of responses are divided between "somewhat" (48%) and "quite a bit" (40%) while only 4% of the sample answered "completely", and (8%) have chosen "very little". These results reveal that most students do not completely trust AI and still have concerns about its reliability. They perceive AI as a machine that can never truly replicate human reasoning. Therefore, verifying the validity of its results is highly recommended.

Figure 19

Students' Level of Trust towards AI Output

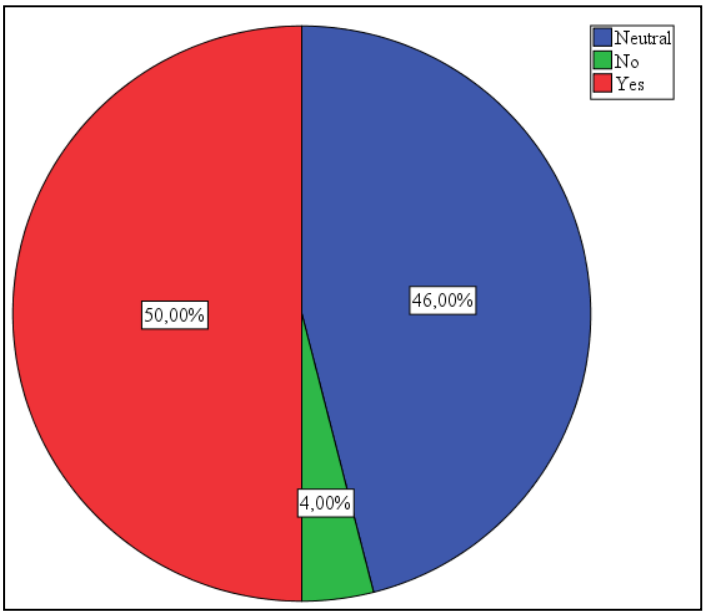


Question 16: Do you think that the institutions should allow students to use AI tools in research?

Question sixteen aims to figure out whether students support or oppose the idea that academic institutions should allow them to use AI tools in research. According to the data displayed in figure 20, half of the participants (50%) believe that institutions should allow students to use AI tools in research, indicating that there is a wide acceptance of AI and its integration in research activities, considering it as a valuable tool that helps them to save time and effort. Meanwhile, only 4% said the opposite, possibly due to concerns about reliability or ethical implications. However, the rest of the students, who represent 46% remain neutral, implying that many students are either unsure about its implications or prefer a rational use of it.

Figure 20

The Integration of AI into Science Research

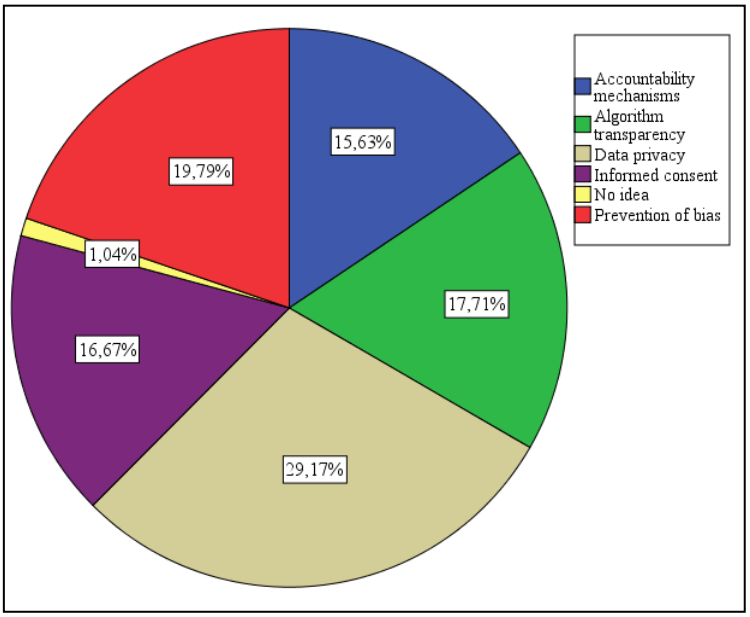


Question 17: In your opinion, which ethical and moral issues are most critical regarding AI use in research? (Select all that apply)

When discussing the most critical ethical and moral issues related to AI in scientific research, the most frequently selected concern on the checklist was “Data privacy” with a rate of 29.17%.This suggests that students are wary about data security risks associated with the possibility of AI getting personal information. Additionally, 19.79% of the participants have selected "bias", highlighting concerns about AI-generated results' reliability, which can produce misleading responses. Meanwhile, 17.71% of the participants expressed concerns about "Algorithm transparency", which may reflect the requirements for greater openness in how AI systems operate their decision-making processes. Following these, "Informed consent" (16.67%) and "Accountability mechanisms" (15.63%) indicate the need for ethical and moral guidelines that ensure individuals' awareness of how AI is used in research and its impact. Lastly, only 1.04% of the participants expressed that they have no idea about these ethical and moral issues.

Figure 21

Ethical and Moral Issues Related to AI Use in Scientific Research

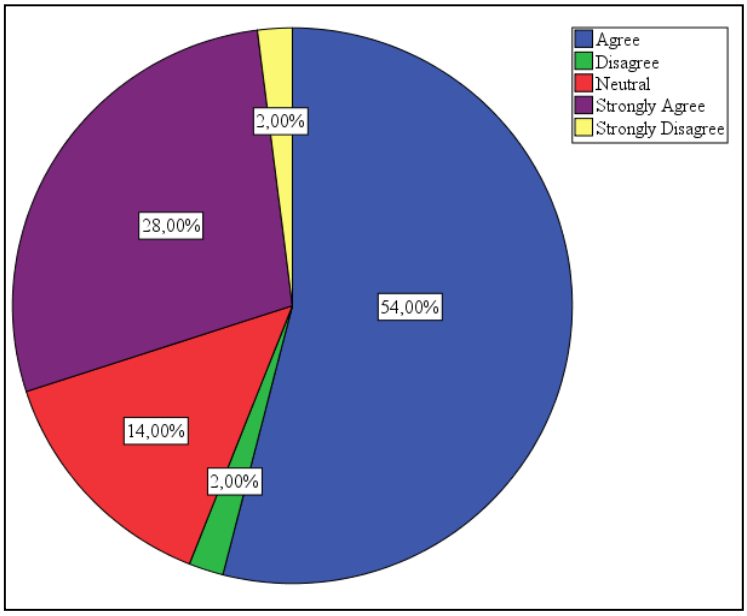


Statement18: When I engage in debates with AI tools, the output often changes based on the way and words I choose.

The question was measured on a frequency Likert scale about whether participants agree or disagree with this statement "When I engage in debates with AI tools, the output often changes based on the way and words I choose." As seen Figure 22, 54% of the students have claimed that they agree in addition to 28% who strongly agreed with this statement. These results illustrate that most of the participants believe that AI's responses are strongly influenced by their choice of words and style, which means that AI's interactions are dependent on the way users ask such tools, making it a relative data base whereas only 4% of the participants accumulated of those who disagree and strongly disagree with the statement think that AI results are always the same regardless of their personal discourse. Additionally, 14% remained neutral, this indicates that they did not experience this verity in AI responses or they are unsure about it.

Figure 22

Attitudes about the Variability of AI's Responses Based on User Input

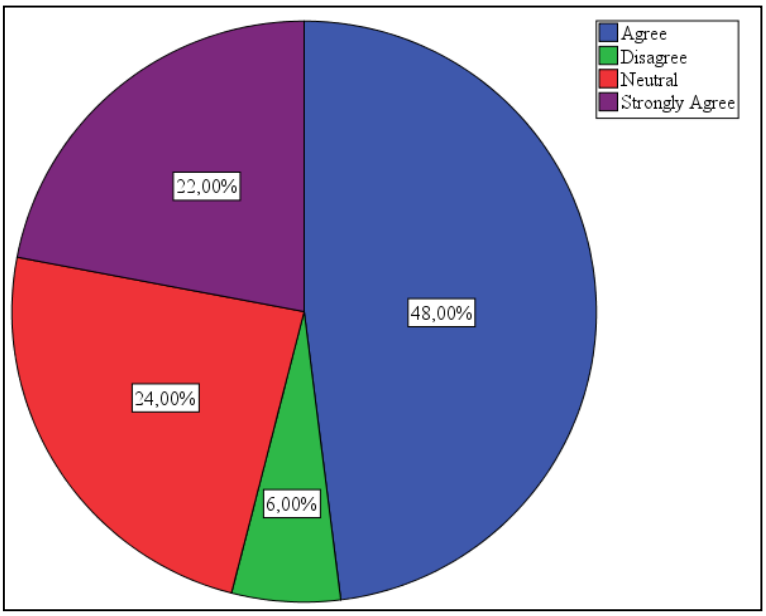


Statement19: I believe that AI tools can gather personal data and chat history.

The next statement is "I believe that AI tools can gather personal data and chat history." According to Figure 23, only a few students disagree (6%). In comparison, most of the participants (48%) reported that they agree with this statement, 22% of them strongly agreed about this undeniable fact, and the rest of the students, who represent 24%, stated that they are neutral. These responses denote that the majority of students are aware and have concerns about AI's potential ability to collect personal information and online conversations. Meanwhile, a significant number remain neutral, implying that they are either unaware, unsure, or unfamiliar with the possibility of AI gathering personal data and conversation history.

Figure 23

Attitudes about AI's Ability to Collect Personal Data and Chat History

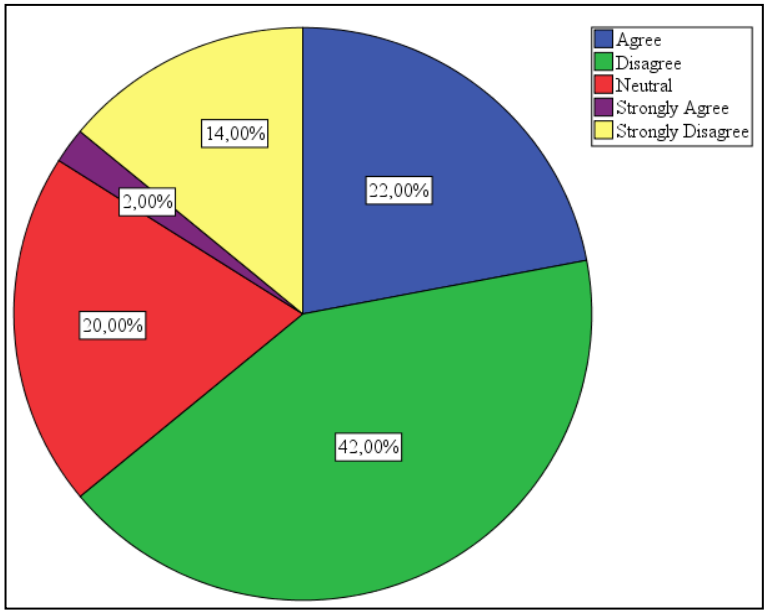


Statement20: The output of chatbots is always accurate and does not need human reviewing.

The results in Figure 24, regarding the statement of "The output of chatbots is always accurate and does not need human reviewing," show that nearly half of the participants (42%) have disagreed that AI's responses are always accurate. To a lesser extent, 14% of them have strongly disagreed. These findings suggest that a significant number of the participants have recognized AI's limitations, Also, they have confirmed that human reviewing is always recommended. Additionally, 22% of participants have agreed on the above statement and 2% showed a strong agreement, which may indicate that a smaller portion of students view AI as a trustworthy data base. However, the remaining number of students (20%) are neutral, possibly due to limited experience or uncertainty about AI's drawbacks. This leads us to the conclusion that most of the study participants are extremely aware of the necessity for double-checking AI's results in order to prevent research activities from being biased, inaccurate, and unreliable.

Figure 24

Attitudes about AI's Output Accuracy

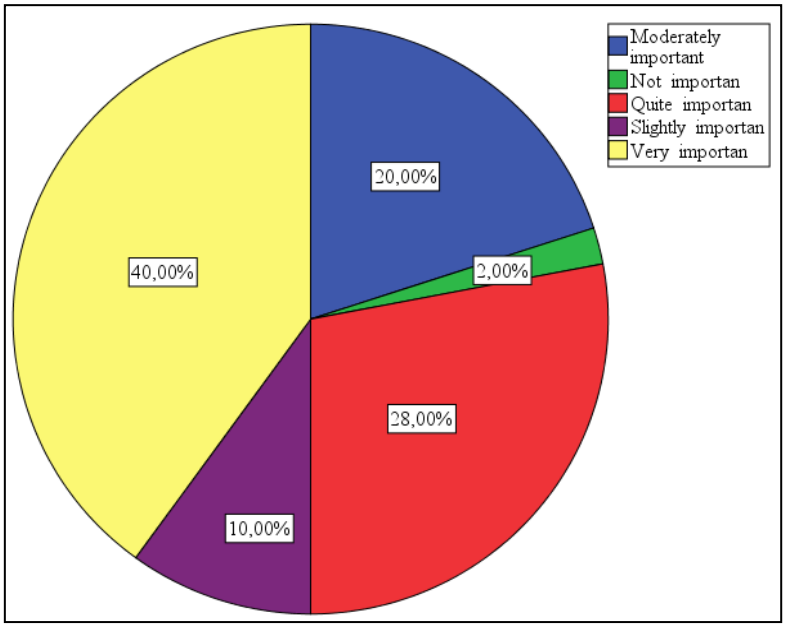


Statement 21: Is it important to have ethical and moral guidelines for AI in scientific research?

The last closed ended question provided to students aims to explore students' attitudes toward the importance of having ethical and moral guidelines to use AI in scientific research. Figure 25 shows an accumulative percentage of students (68%) answered that it is either very or quite important to have policies for AI use in research, suggesting the growing awareness about AI's implications in this context. Additionally, 20% of the study participants say that it is moderately important, and 10% have chosen slightly important, which indicates that including guidelines of AI's ethical and moral use is important but still not essential. Also, it implies that those students have slight concerns about the ethical and moral use of AI in research activities. However, only 2% claimed that it has no importance. Few of this study's participants stated that there is no need to include policies of using AI that guide researchers in their activities, while the majority of them stated that AI should be governed by ethical and moral standards in scientific research.

Figure 25

Attitudes about Ethical and Moral Guidelines of Using AI in Research



Question 22: What measures do you think should be implemented to ensure ethical and moral AI usage in research?

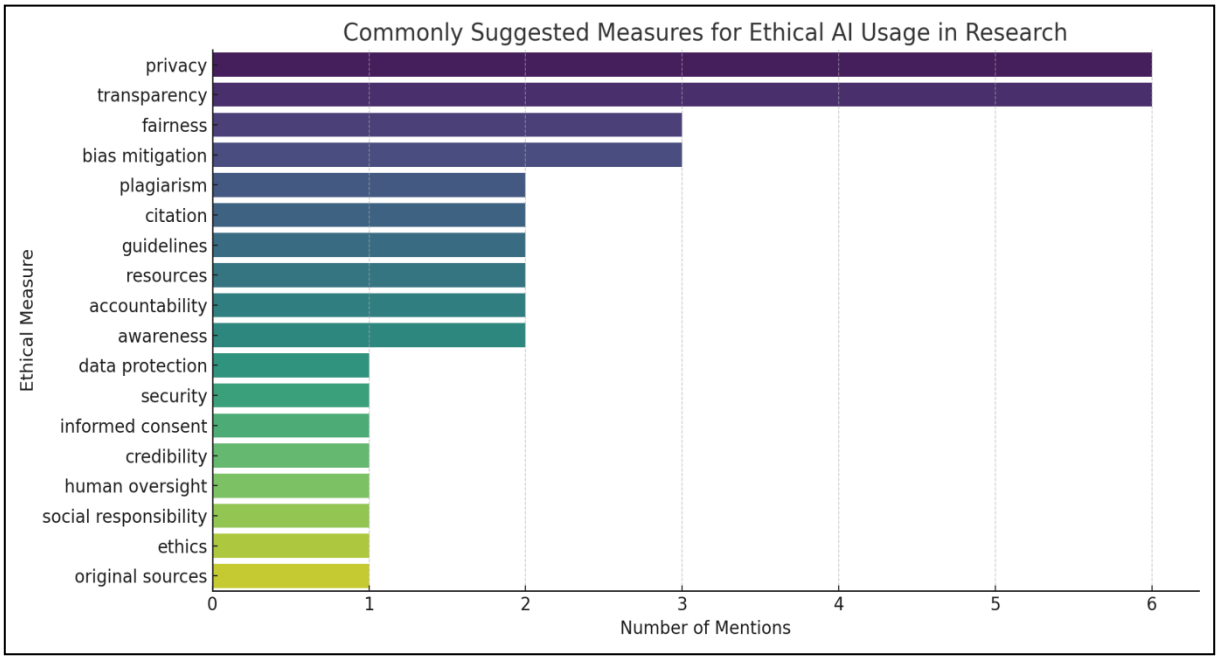
The first question aims to explore students' perspective about the different measurements that should be implemented to ensure the ethical and moral use of AI in academic research. Five students choose not to answer this question while ten students stated that they had no idea about it, which indicates that they are either unfamiliar with this topic or that they prefer not to answer, as some students find it difficult to answer open-ended questions. Among the feedback that was received from the participants who took part in answering the questionnaire are the following notes:

- ✓ The majority of students believe that researchers must declare how and when AI tools are used. In addition, each result should be paraphrased and correctly cited in order to maintain the transparency and accountability of the research work.

- ✓ Students said that institutions and universities should implement ethical and moral guidelines to ensure the ethical and moral use of AI in research.
- ✓ Nearly a quarter of the responses indicated that AI feedback can never completely replace human interaction. However, it can be a useful tool in education and research despite its limitations and drawbacks, which highlight the need for human reviewing and critical thinking to ensure the accuracy of the findings.
- ✓ Many students have emphasized the critical need for measures to protect personal data and chat history from being illegally exploited and used without any permission.
- ✓ Another ethical and moral issue regarding the use of AI in scientific research is bias. In this context, participants have stated that promoting fairness and mitigating bias are crucial to ensure fair outcomes from AI chatbots and balanced research findings.
- ✓ Some other students referred to the need for AI detectors and software in institutions and universities to ensure academic originality and authenticity.
- ✓ Additionally, students mentioned that conducting research is a personal responsibility of each researcher, thus the rational use of AI is highly recommended.
- ✓ Students also suggested the organization of regular workshops, awareness sessions, and training programs for the students to educate them about how to use AI ethically and morality and to prevent plagiarism and other issues during the research process.

Figure 26

Measures for Ethical and Moral AI Usage in Research



Question 23: How do you perceive the role of AI in future scientific research?

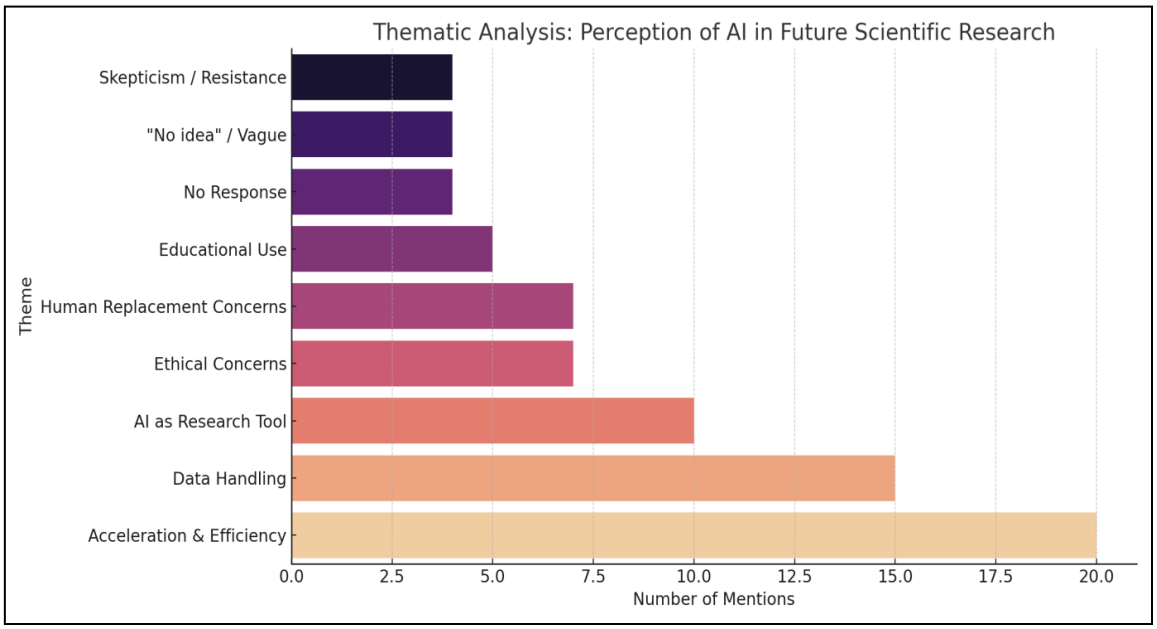
The next and the last question, which is open-ended in nature, was asked to predict the role of AI in future scientific research in Algeria. Four students chose not to answer this question while another four were unsure about the responses, maybe because they have limited experience with such tools. Thus, students cannot give any further prediction, and they cannot express their future vision regarding AI use in scientific research. This question's findings vary from optimistic perspectives to pessimistic ones indicating a shadowy future of this technology in the area of education and research.

- ✓ Most participants in this study said that AI will accelerate scientific studies, promoting innovations and discoveries in different fields and domains.
- ✓ The ability of AI to generate, operate, analyze, and interpret data within seconds makes it faster, easier, and effective tool which saves researchers' money, time, and effort.

- ✓ Some students said that one day AI can replace humans while others have had concerns about the loss of humans' creativity and personal touch.
- ✓ AI could replace schools and colleagues and could prevent students from going to school by providing a platform with unlimited resources and data and enhancing self-directed learning.
- ✓ Additionally, some of them questioned its credibility and reliability, emphasizing the need for ethical and moral guidelines and responsible use to address its drawbacks in the future.
- ✓ A quarter of them suggested that AI tools could generate new ideas, help structure research, and even provide the researchers to find the appropriate methodology for their works.
- ✓ Few of them denied the importance of AI in the future of research and education due to its uncertain findings, which made them lose their trust in this technology.

Figure 27

Perception of AI in Future Scientific Research



2.3.1.5. Summary of the Main Findings

- Regarding the use of AI, most students have previously experienced this tool at least once, and they find it a beneficial tool to solve various personal and academic problems.
- A quarter of this study's participants disagreed that AI significantly enhances the motivation in the EFL learning process while three-quarters agreed.
- Two-thirds of the sample believe that AI significantly enhances language skills.
- The overwhelming majority of students state that AI is an effective tool to enhance learners' academic writing competence.
- Almost all the participants are incorporating AI tools into their academic research.
- More than half of students agree that integrating AI in research activities is necessary.
- While AI offers help, it may still have some drawbacks that make some students use traditional methods.
- The majority of students recognize the ethical and moral issues of using AI in research activities, reflecting growing awareness and engagement with the topic.
- The bulk majority of students partially trust AI output, indicating that they have concerns about the credibility and reliability of AI-generated results.
- Most of the students indicate that the most critical ethical and moral issues related to AI usage in research are data privacy and bias.
- Half of the participants agree that AI interactions are strongly influenced by their choice of words and argumentation style, indicating that they do not trust the accuracy of AI‘s responses.
- Half of the students believe that AI tools can gather personal data and conversation history.
- Nearly A quarter of the participants are neutral about the necessity for human review of AI-generated results, indicating uncertainty about AI's relative accuracy or limited experience with such innovative technology.

- The majority of students recognize the importance of having ethical and moral guidelines for AI use to ensure credible research results.
- Institutions should make ethical and moral guidelines to address the ethical and moral issues related to the use of AI in scientific research.
- Organization of workshops and programs about the ethical and moral use of AI and applying AI software and detectors could enhance the transparency and accountability of using AI in research.
- Positive views regarding the future use of AI in research, which saves time, money, and effort.
- The use of AI in academia should be guided, restricted, and controlled by human strategies such as paraphrasing, reviewing, and citation.
- Gathering personal data, the possibility of bias, and the relativity of information are the most critical issues that prevent AI feedback from being completely accurate.

2.3.2. Teachers' Focus Group

2.3.2.1. Description of the Focus Group

The focus group is a powerful data gathering tool which focuses on AI use in academic research, its integration, its impact, and ethical and moral considerations related to its in EFL teaching and scientific research. The "group interview" contains ten questions with sub-questions which explores the use of AI in language teaching and its use in scientific papers. It also outlines its potential benefits, addressing issues regarding how it may affect student learning and teaching roles, and providing solutions for any negative effects. This focus group examines the potential integration of AI in EFL classes as well as the ethical and moral considerations of using it in academic research. In this study, teachers participated in a semi-structured focus group method. The primary purpose of this method was to collect in-depth information on various topics, including their experiences with using AI in teaching, their

perceptions of its benefits and drawbacks, and their views on practical strategies and ethical and moral considerations for integrating AI tools into EFL education and research.

2.3.2.2. Conducting the Focus Group

The focus group involved six English teachers, and the session was arranged based on their availability to ensure convenience and full participation. The discussion was held in person at the university in a relaxed and supportive environment, which encouraged open and honest communication. All teachers were given ample time and space to share their thoughts and opinions on the topic without pressure or interruption. The focus group took place on Sunday, April, 20th. Throughout the session, it became clear that the teachers' perspectives differed, largely influenced by their individual levels of experience and knowledge about the subject. These differences in familiarity contributed to a broader range of viewpoints, adding richness and complexity to the information collected from the focus group.

2.3.2.3. Focus Group Analysis Procedure

Researchers of this study have conducted a thematic analysis followed by SFL analysis (Systemic Functional Linguistics) of teachers' responses to the focus group questions. The thematic analysis focuses on the main themes stated in the group discussion while SFL is "the study of the relationship between language and its functions in social settings" (Accurso & Gebhard, 2022, 0:20). It is based on three main analysis procedures: ideational metafunction, interpersonal metafunction, and textual metafunction.

- Ideational metafunction: It represents the use of language to express ideas and acts including processes such as verbal, mental, material, relational, and existential.
- Interpersonal metafunction: It expresses attitudes and interactions between speakers using: Mode (types of sentences), modality (adjectives, verbs and modal verbs), and personal pronouns (the inclusiveness and the exclusiveness of participants).

- Textual metafunction: It focuses on the text's structure and organization through the use of conjunctions and linking words . It ensures the logical connection of the speech's ideas and maintains its coherence. (Halliday, as cited in Hyland, 2005, p. 26)

2.3.2.4. Focus Group Analysis and Interpretation

This focus group aimed to gain deeper insights into teachers' opinions and experiences regarding the integration of AI into EFL classrooms and scientific research. It explored the possibilities and challenges of AI-driven language instruction by examining integration advantages and pedagogical implications. The motive behind selecting a focus group is the aim of this study, which is to provide comprehensive overview and practical suggestions for successful implementation of AI in scientific research.

Part 1: Teaching Experience

Question 1: What technology tools you are actually using in your language teaching process?

The first question aimed to explore the technological tools used by teachers in their lives and classrooms as well as the tools they wish to use in EFL classes. All teachers have used at least one technological tool in their classrooms, and they all agree about their usefulness, and they described them using positive connotations (beneficial, good, useful...). One teacher used the coordinating conjunction "but" to contrast the restricted access to advanced tools (e.g., 3D virtual environments), which realizes coherence of her discourse. When asked about AI, all teachers already knew about it except for one teacher who used an interrogative mode, " what do you mean by AI?" which indicates her unfamiliarity with this innovative technology. Regarding the use of AI in classes, the majority of participants allow their students to use tools like ChatGPT but with restrictions. In their responses, they used material processes (let, check, control, guide, make...) and relational processes "it seems beneficial," "it is OK to use it," "they are easy to use." In addition, to refer to a previous experience, one teacher illustrated her argument using the mental process "remember," which implies her analogical comparison

between past and present circumstances. Also, she used the adverb "wisely" to describe how AI tools should be used.

Question 2: What do you think about incorporating AI in EFL learning classrooms?

The second question was meant to highlight teachers' and students' opinions and attitudes on including AI in EFL learning classrooms, as it explored if students use AI tools to accomplish their written assignments, and if teachers are able to discover that. Teachers' perspectives on AI in education expose a complex interplay of cautious adaptation and institutional constraints, the proof of that is the existence of the material processes "take, guide, check, show." One of the teachers mentioned her experience in another country, where they not only allow their students to use AI, but also insist on its use inside the classroom. She used the pronouns "they, their, them" to refer the teachers abroad. While she stated, "But in our country I do not think we are ready to use it in our classrooms," using the pronouns "we, our," which indicates the exclusiveness and the distinction between the educational systems of the two countries. Additionally, logical links like "but, so, because " create cause-effect and contrast. Meanwhile, most agreed that AI is a supplementary learning aid that can help in motivation and brainstorming, saying"It can be good for motivation," which signals possibility and probability.

All the participants have had concerns about academic integrity, particularly in humanities subjects like discourse analysis, literature, and civilization. In addition, they described students' over-reliance on AI tools using these adjectives "very literal, frustrated, incapable, dependent." One teacher used passive voice sentence, "many tools that are used by students make them lazy," emphasizes the impact of AI tools on students while another teacher explicitly equated its use to cheating. Teachers reported relying on their familiarity with students' writing styles to detect AI-generated content because they are aware of their students' levels, though one asserted the need for AI checkers to ensure fairness towards high-

level students. The proof of that is the use of the adverb of manner in "teachers can easily discover," which reflects teachers' certainty and awareness about their students' levels. Overall, teachers are not really for the opinion of teaching AI, as they consider it as a sort of support for cheating. Also, the use of lexical chains such as repetitions of "AI tools, teachers, students, checkers" reinforce topic' coherence.

Part 2: AI in Education and Research

Question 3: To what extent do you think AI tools can improve students' EFL experiences?

a. In your opinion, how helpful is AI for students with different levels of academic writing and proficiency?

The third question examines AI tools' ability to improve students' level, especially students with different levels of academic writing proficiency. Teachers generally perceived AI tools as beneficial for those whose level is good more than beginners, using comparative and superlative forms "more, most" to distinguish between the two categories. Also, they used mental processes "think, recognize, doubt," to express their uncertainty about the positive impact of AI tools to enhance writing skill. Most of the teachers who were familiar with these innovative tools highlighted that AI could help advanced learners, especially in paraphrasingbecause they know what to take and what to leave. While explain, teachers used causal conjunctions such as «because" and adverbs such as "especially, even" as way to emphasize their perspectives.

However, a contrasting theme emerged around skill erosion risks, as one teacher warned that over-reliance could undermine critical thinking and autonomous problem-solving, even for proficient students. The teacher used the adverb "sometimes" which indicates that only in occasional circumstances AI kills students' writing skills. The tension between AI and cognitive abilities highlighted the need for structured guidance to maximize benefits while mitigating unintended consequences. One teacher warned that "over-reliance could undermine

critical-thinking …," which signals cautionary perspective and reflects negative consequences, but still, she was uncertain about it using the modal verb "could," which signals possibility. Lexical chains like repetition of "students, AI tools, level, skills" are strongly used to reinforce their speeches' coherence.

Question 4: How do you identify the role of AI in scientific research paper writing?

The fourth question aims to explore the role of AI in writing scientific papers and its threat to the integrity of research writing while highlighting AI's positives and negatives. Teachers' perspectives reveal three key themes regarding AI tools in academic research and education. First, most teachers distinguished between the possibility of using AI in the theoretical versus practical research parts. While discouraging its use in the theoretical section to preserve originality, they agreed with its usefulness in methodological tasks, such as data analysis, insights' generation, and elements' organization. They used conjunctions such as contrast "but" and cause-effect "due to". One teacher used the imperative mode, saying, "don't use AI tools in the theoretical part!" which conveys concerns and caution about using it in the theoretical part.

However, it may help in analyzing insights and organizing the research work as one teacher said "maybe it helps" reflects uncertainty of its usefulness in the practical part. Second, ethical concerns about integrity were prominent. Teachers believe that AI threatens research authenticity, and one teacher claimed that ideational plagiarism is worse than verbal theft, although both of them are forbidden in research, using processes like "plagiarizing, stealing, cheating." Most of this question's answers are declarative sentences with active voice: "It will give you references that do not exist," "The answers of AI are very general," "AI doesn't provide accurate answers," which emphasizes teachers certainty about AI's drawbacks and limitations. Finally, impacts on students' development were highlighted, with teachers warning that over-reliance on AI risks killing human creativity, critical thinking, and

skill acquisition. Regarding this issue, the participants have used negative connotations to describe AI's negative impacts: "lazy, weak, critical, wrong, general, inaccurate," in addition to the use of lexical chains like repetition of "AI tools, research writing, stealing", which reinforces coherence. Also, all teachers have used the pronoun "we," including themselves in the category (teachers) while using the pronouns "them, they," excluding themselves from the other category, which is students.

Question 5: Would you advise EFL learners to employ AI tools in their learning process and scientific research?

The fifth question is related teachers' opinions about advising EFL learners to employ AI in the learning process and scientific research, and whether they can tell if their students cheat in exams. Teachers' answers regarding this question are different. Some of them advise students to use AI tools like ChatGPT for organization, plagiarism checking, and paraphrasing, providing materials processes like " check, control, organize" and verbal processes "ask, say, advice". One teacher claimed that there must be some guidance on AI use in classrooms, stating, "AI usage should be controlled," which is a passive voice declarative sentence that indicates the necessity or obligation for change using the modal verb "should." It emphasizes that AI usage needs to be highly regulated and fully guided. Another teacher said:"I think they could use it just to organize their works" using the adverb "just" which indicates the limited use of AI in research. All the teachers can detect if their students cheat using AI in their assignments and exams. One teacher said:"Of course, I can easily discover that because I know my students' level and writing style, and when one of them uses difficult word, for example, it is clear that they obtained it from ChatGPT." This shows her certainty (of course), and illustrating her opinion with an example "for example." Also, to convince the audience she used cause conjunction "because." One teacher mentioned her previous experience when she discovered that six of her students cheated in Discourse Analysis exam; she used this

exclamatory sentence "it is catastrophic!" to express her strong emotion about the irrational use of ChatGPT in their learning process. Pronouns "their students, them" maintain clarity about roles. Teachers hold primary position as control and (Students) have secondary, directed position acting on teachers' instructions. Additionally, the use of parallel structure "to ask…, to check…, to use…" makes the discussion more fluid, clear, and coherent.

Part 3: The Ethical and Moral Considerations of Using AI in Scientific Research

Question 6: How familiar are you with the concept of ethical and moral AI use in education?

The sixth question addressed teachers' familiarity with ethical and moral AI usage in education and research, and their opinion about integrating AI guidelines in the curriculum, as it noted if students are aware of those guidelines. All the teachers agreed that this concept is new, claiming that students pushed them to learn about it, expressing their views using different ideational metafunction processes such as "pushed, learn, teach, encourage, cheat." One teacher described it as "something alien to our system," signaling her unfamiliarity with this concept and implying that the Algerian education system is unprepared to integrate it into the teaching-learning process. Another teacher used a relational process "it is new," to indicate that AI in research and education is recent and not yet completely understood and integrated into EFL teaching and research-making process. Most of them were unsure about whether teaching AI and its ethics is beneficial or not, for that, they used mental processes "think, guess, know." Meanwhile, some teachers disapproved of the necessity of integrating AI and its ethical implications into the curriculum. One teacher stated, "Probably when we teach them, they will know how to use it to cheat." This uncertainty indicates their concerns about the counter-effect of teaching AI that could enable dishonest practices. Another teacher said, "they don't care about ethics," using the pronoun "they" to exclude students and criticize them for their lack of interest in such a crucial issue. While teachers oppose formalizing AI ethics in the curriculum, they unexpectedly teach it to Master One students, reflecting

institutional contradictions. However, a minority of advocators claimed that maybe it is good to teach them, supporting their argument with the idiom "The forbidden fruit is the sweetest," emphasizing the idea that people are often drawn to what is prohibited. Additionally, the existence of "alien, not prepared, cheat, don’t care" signals negative judgment and moral critique of AI’s disruptive role in students' learning process.

Question7: How do AI tools influence the originality and authorship of research paper?

The seventh question underlined AI influence on the originality and authorship of research papers and it questioned the accuracy, reliability, and credibility of the data produced by AI. It also discussed AI biased responses along with its potential to collect personal data. Teachers agreed that AI tools kill creativity, originality, and authorship, explaining their thoughts using mental processes, "think, believe, understand ." As one teacher stated that since originality is creativity, relying on AI is considered a form of plagiarism, using this cause-and-effect sentence to highlight her perspective. Additionally, she stated that any piece of information produced by AI tools is often unreliable and lacks in-text citations, using declarative mode to emphasize this undeniable fact. Since AI is widely used, it tends to generate the same general information for everyone, which makes all AI users plagiarize from one another. In this context, teachers used negative connotations " guilty, cheater, plagiarized, unethical." One teacher claimed that there is no data generated by AI and everything is based on real life experiences, which means AI never generates or produces data, but it only provides broad answers without specifying details. Furthermore, all the participants advocated that AI's lack of cultural competence makes it biased and may not accurately address topics related to stereotypes, races, religions, taboos, or other sensitive subjects, calling it "a learning machine" that provides information being learned before. To give evidence about this view, one teacher illustrated her argument using the Israeli-Palestinian current war. When asking AI about this conflict, she found that its responses contradicted the real circumstances. Hence, AI-generated

results are inaccurate, unreliable, and incredible because they can vary depending on the context and the person asking the question. Teachers also shared concerns about AI tools' ability to collect personal data, referencing their own experiences with these technologies. One teacher said, "so, we don't think, we believe," expressing her certainty about this issue. Thus, teachers used the existential process "there is necessity for ethical guidelines," to highlight the need for ethical guidelines to overcome the consequences of AI use in research.

Question 8: What policies should universities, institutions, and journals adopt regarding AI use in scientific writing?

The eighth question addresses policies that universities, institutions, and journals should adopt regarding AI use in scientific writing as well as teachers' role in promoting ethical AI practices. Teachers agreed that universities should organize educational workshops and training programs for both students and teachers to raise awareness about the proper use of AI tools. The use of the modal verb "should" signals the obligation of such measures regarding the integration of AI in education. Moreover, the majority of them highlighted the importance of incorporating AI detectors in every institution. While one teacher expressed her strict measures regarding the use of AI mentioning her previous experience in classrooms using warning affirmation "every student who uses ChatGPT should be punished, either by getting zero in the module or getting a behavioral report, probably both." To provide evidence for her stance, this teacher used conjunctions like the coordinators "and, but" and the correlative "either." Also, she used future conditional certainty, "they will get both," which highlights the negative attitude and its undesirable consequences. Furthermore, all the participants emphasized the role of the teachers in guiding and controlling their students, along with raising their awareness and giving beneficial instructions to them using obligation and imperative mode sentences.

Question 9: How do you balance promoting innovation through AI tools while maintaining

ethical and moral standards?

The ninth question discusses the way to balance promoting innovation through AI tools while maintaining ethical and moral standards. All teachers agreed that making a balance between promoting innovation through AI tools and maintaining ethical standards is challenging. The proof of that is the use of relational processes "it appears, it seems" to describe this critical issue. However, one teacher argued that achieving this balance is impossible and believes she will never be able to reconcile the two, which indicates the absolute certainty about her inability to do both. The use of the adjectives "challenging, impossible, difficult" indicates the struggle of teachers and institutions to accomplish this complex task, which is something nearly unachievable. All the teachers have used the pronoun "we" to express inclusiveness and belonging to one social group while they have used the pronouns "they, them" to blame students for cheating, as if teachers have no responsibility for that. Linking words and conjunctions, as well as repetitions, are strongly used in teachers' conversations, which improves the discussion's coherence and clarity.

Question 10: How do you perceive the role of AI in scientific research?

The tenth question aims to identify teachers' opinions on the role of AI in the future of scientific research. It also explores how educational systems might evolve to address the future challenges of AI usage in academic research. One teacher used an interrogative mode by asking, "what will happen in the future?" Which reflects her curiosity and uncertainty about the future circumstances. Teachers agreed that artificial intelligence will play a major role in the future, as one teacher said, "We are living in a very fast-paced society." Additiongly, they highlighted the existence of advanced AI tools that can generate human-like text. Some applications, for example, analyze a student’s writing style and later produce text that mimics it, which raises concerns about authorship. One teacher noted that the acceptance of AI in education depends on the specific field, domain, or major of study. She illustrated her

argument using an example and making generalization, "English teachers generally refuse AI integration in their classes because they focus on teaching language and preserving students' individual writing styles and creativity." Teachers emphasized the importance of collaborative efforts with other countries whose technology is more advanced than here in adapting to AI's role in education. They believed that scholarships should be encouraged to support educators in exploring effective ways to integrate AI tools into their teaching practices. The mental process "believe" is used here to signal certainty and commitment while the modal verb "should," signals moral obligation. Moreover, conjunctions like causal "since, because," and contrastive "but" implied the acceptance vs. rejection of AI usages and its ethical guidelines. Lexical chains such as "artificial intelligence, ChatGPT, analyzes, students, classes, scholarships, teaching experiences," are essential for realizing coherence and cohesion of the conversation. Also, the pronoun "it" maintains clarity about AI tools as the object of the study while the pronouns "they, we" refer to teachers as protectors of pedagogical integrity. all are essential for realizing coherence and cohesion of the conversation.

2.3.2.5. Summary of the Main Findings

- Teachers use AI tools like Data-show but lack access to advanced tools like 3D environments.
- Some teachers accept the use of AI (e.g., ChatGPT, dictionary apps) to guide students use rather than prohibiting its integration.
- More than 80% of students should be guided on how to use AI tools properly.
- AI reliance can negatively affect writing skills, critical thinking and learning abilities. Overtime, it causes over-dependence.
- Students with a good level benefit more because they can filter AI-generated content effectively.

- AI threatens academic integrity, as AI-generated work is considered as cheating. Students are aware of ethical and moral implications but disregard them.
- Teachers struggle to balance AI's innovations with ethical and moral guidelines.
- AI-generated information lack citation, so they are not original.
- AI may not always capture cultural and contextual nuances; its responses are biased or incomplete.
- Universities should provide training for teachers as well as students on ethical and moral concerns of AI use.
- AI will become widely used in future classrooms and academic research. Some AI tools imitate human writing styles, which affects authorship.
- English teachers oppose using AI in language learning, emphasizing the originality of students' works.

2.4. Discussion of the Main Findings

The questionnaire and the focus group explored the integration, impact, and ethical and moral considerations of using AI in EFL classrooms and scientific research. While there are some converging themes, each method also revealed unique insights from students (questionnaire) and teachers (focus group).

The questionnaire, primarily directed to students of Master Two, exposed generally positive experiences and perceptions of AI tools. Most students have used AI tools at least once and find them beneficial for solving personal and academic problems. A significant majority agreed that AI enhances motivation in EFL learning, and the others believe that it significantly improves language skills. The overwhelming majority of students found AI effective for academic writing but the teachers disregarded that, and almost all participants incorporate AI into their academic research. Most students highly recommend AI use to other learners.

The majority of students recognize ethical and moral issues related to AI in research. However, only partially trust AI output, indicating concerns about credibility and reliability; both students and teachers agree on that. Data privacy and bias were identified as the most critical ethical and moral issues; half of the students believe AI tools can gather personal data and conversation history. Half also found that AI interactions are influenced by their choice of words, making it difficult to trust accuracy.

Students recognize the importance of ethical and moral guidelines for credible research results. They suggest institutions create ethical and moral guidelines, and organize workshops/programs on ethical and moral AI use, and apply AI software/detectors for transparency and accountability as they hold positive views regarding AI's future use in research, fostering benefits in saving time, money, and effort. They believe AI use in academia should be guided, restricted, and controlled by human strategies like paraphrasing,

reviewing, and citation.

The focus group, involving six English teachers, provided in-depth qualitative insights into their experiences and perspectives on AI. Teachers use basic technological tools (e.g., Data-show) but often lack access to advanced ones like 3D virtual environments. While most teachers were aware of AI, one expressed unfamiliarity. The majority of participants allow students to use AI tools like ChatGPT, but with restrictions. Teachers generally see AI as a supplementary learning aid that can boost motivation and assist with brainstorming.

All participants expressed concerns about academic integrity, especially in humanities subjects. They described students' over-reliance on AI as leading to negative outcomes like being "very literal, frustrated, incapable, and dependent". Some teachers equated AI use to cheating, and overall, they are not in favor of "teaching AI" as they see it as supporting cheating.

Teachers generally perceived AI tools as more beneficial for advanced students who can filter content effectively, but warned of risks like undermining critical thinking and autonomous problem-solving due to over-reliance. Teachers distinguished between using AI in theoretical versus practical research parts, discouraging its use in the theoretical section to preserve originality but agreeing on its usefulness for methodological tasks like data analysis.

Ethical and moral concerns about research authenticity were prominent, with teachers believing AI threatens it. They noted AI-generated information often lacks citations and originality. Teachers also expressed concerns about AI tools collecting personal data which is a common opinion between them and the students. They found the concept of ethical and moral AI use to be new, with students often prompting their learning in this area.

There was uncertainty among teachers regarding the benefits of formally integrating AI ethics into the curriculum. Some teachers disapproved of this, fearing it might enable dishonest practices. Teachers agreed that balancing AI innovation with ethical and moral

standards is challenging. They agreed that universities should organize workshops and training programs for both students and teachers to raise awareness about proper AI use. They emphasized the importance of incorporating AI detectors in institutions. Teachers agreed that AI will play a major role in the future of scientific research and education. They noted that acceptance of AI varies by field, with English teachers generally opposing it due to focus on language teaching and preserving individual writing styles. They also emphasized the need for collaborative efforts with advanced countries and encouraged scholarships for teachers to explore effective AI integration.

The integration of artificial intelligence into scientific research papers presents issues related to the ethical considerations of using AI. Shaping the attitudes of researchers and impacting the integrity and authenticity of findings. Key ethical and moral concerns revolve around academic integrity, originality, data privacy, and bias. Which is the answer to the research question: **What are the ethical and moral considerations associated with using artificial intelligence in the creation of scientific research papers?**

Students generally hold positive attitudes towards AI, recognizing its benefits for academic writing and efficiency, though they share teachers' partial distrust of AI output regarding credibility and reliability. Teachers, while acknowledging AI as an additional tool, express more diverse opinions, with some comparing its use to cheating, particularly in humanities. It provides the answer to the sub-question: **What are the attitudes of researchers towards the use of artificial intelligence in their research papers**? As it appears in the previous studies as Cochran, 2023 mentioned that the integration of AI into academic researches raises significant ethical and moral issues. While it offers substantial benefits, concerns have been raised about its potential to encourage unethical practices such as plagiarism, inproper citation of sources, and overdependence on AI for academic tasks, all of which could undermine academic integrity, which aligns with teachers' opinions.

Ethical and moral risks include the potential for academic dishonesty, over-reliance leading to diminished critical thinking, threats to research authenticity due to lack of citation and originality, and inherent biases within AI tools. Integrating AI tools in scientific research profoundly impacts research integrity; while AI can enhance efficiency and improve knowledge, it poses threats such as the potential for fabricated data, false peer reviews, and the erosion of original thought. Maintaining academic credibility necessitates the establishment of clear ethical and moral guidelines, improved evaluation methods, and comprehensive training so AI serves as a powerful, responsible partner in knowledge pursuit. Which clearly highlights the answer to the sub-question: **What are the ethical and moral risks associated with using AI in the creation of research papers?**

The previous studies that are related to the topic mentioned that integrating AI in scientific research raises ethical and moral issues such as plagiarism, lack of source attribution, and overreliance on AI. As it highlighted the need for a balance between AI's benefits and ethical considerations, it emphasized the importance of balancing AI's advantages with research integrity. The idea is mentioned in a qualitative study in Saudi Arabia, Sobaih (2024). In addition, the ethical and moral concerns of which are transparency and intellectual property persist, as mentioned in the previous studies.

To enhance the integration of AI in scientific research Institutions should create ethical and moral guidelines, and universities should organize workshops and training programs for both students and teachers to raise awareness about proper AI use, as it is important to incorporate AI detectors in institutions. Universities should encourage scholarships for teachers to explore effective AI integration since teachers have an essential role in guiding and controlling students, raising awareness, and providing beneficial instructions. Maintaining academic credibility necessitates the establishment of clear ethical and moral guidelines, improved evaluation methods, and comprehensive training. This addresses the answer of the research

sub-question: **What are the actions needed to enhance the integration of AI in scientific research?**

Uyan, (2023) mentioned a particular concern, which is the emergence of « ready-made science» as a situation where AI produces outputs without the necessary human intervention or critical analysis that ensures scientific accuracy and authenticity. This study highlights the specific actions needed to enhance the integration of AI in scientific research, aligning with the findings of Dr. Mahwish et al. (2024), who emphasized the importance of balancing AI's benefits with research integrity. The present study confirmed all the mentioned ideas in the previous studies, as it supports them with explanations and examples.

Conclusion

This chapter analysis offers a deeper understanding of the attitudes and views held by both Master Two English students and teachers of English at Khenchela University concerning the ethical and moral considerations of using AI tools in EFL classes and scientific research. The study reveals varied perspectives regarding AI's ethical and moral implications in language education and academic writing. While students generally demonstrate a comfort with AI technologies and recognize their potential benefits, the research also notes a degree of student uncertainty regarding the reliability of AI-generated information. In contrast, teachers express more diverse opinions, with some viewing AI usage in the classroom and scientific research as they consider it as cheating. Ultimately, this chapter underscores the critical necessity for well-defined ethical and moral guidelines and improves evaluation methods to maintain academic credibility. It further highlights the complex relationship between emerging technologies, the practices of scientific writing, and the fundamental principles of academic integrity. Therefore, the implementation of comprehensive workshops and adaptable institutional frameworks is crucial to ensure that AI serves as a powerful partner in the pursuit of knowledge, rather than posing a threat to its integrity.

General conclusion

The research paper aims to highlight the ethical and moral considerations of using AI tools in EFL classrooms and scientific research. This study was to make students aware of the ethical and moral concerns of using AI tools, especially in scientific papers. The main objectives focus on understanding the perspectives of both students and teachers, as well as determining effective strategies for controlling AI's use in EFL classes and scientific papers. Additionally, this study explored teachers' opinions on students' use of AI tools, focusing on AI's impacts on students' skills and abilities in the classroom and even scientific research, and it measured students' awareness about the risks of relying on AI tools. Moreover, the study highlighted guidelines for incorporating AI into EFL education to enhance language learning outcomes. Furthermore, this research examined teachers' attitudes towards integrating ethical and moral considerations into the curriculum to manage students' use of these tools in EFL classes and academic research, reflecting their perspectives.

The following research questions addressed the ethical and moral implications of using AI in scientific research:

What are the ethical and moral considerations associated with using artificial intelligence in the creation of scientific research papers?

Sub-questions:

1. What are the attitudes of researchers towards the use of artificial intelligence in their research papers?
2. What are the ethical and moral risks associated with using AI in the creation of research papers?
3. What are the actions needed to enhance the integration of AI in scientific research?

The researchers collected all the data that are relevant to the objectives of the study to provide sufficient answers to the research questions. The researchers began the theoretical

chapter of the research by investigating the previous studies related to the topic, which is the literature review. The researchers explored the history of technology implementation in EFL classes and scientific research and also investigated AI in that chapter : what it is, its types, and its benefits as well as its limits, leading to its use in academic research, its ethical and moral considerations, and its responsible use in scientific research.

The researchers then moved to the next chapter, which was the practical one. They adopted a convergent mixed methods research design that combines both qualitative and quantitative approaches. The researchers used a questionnaire to gather students' opinions on the use of AI tools in classrooms and scientific papers; it was administered to second-year Master's students. The findings revealed that students generally held a positive attitude toward the AI tool. Students found AI tools helpful in the learning process, especially academic tasks such as assignments and scientific papers. Additionally, AI tools increased students' motivation and engagement during sessions. However, some students expressed negative attitudes toward the data generated by AI tools, noting that it could be unreliable and should be reviewed by humans. Others also noted that they do not trust AI tools because they collect personal information, which makes them feel unsafe.

In the same chapter, researchers conducted a focus group with EFL teachers to explore their attitudes towards the use of AI tools in the classroom and scientific papers as well. The researchers chose to discuss the topic with six teachers. Teachers revealed mixed attitudes. While some expressed optimism about how AI tools might enhance students' productivity and learning experiences, others noted concerns about how AI might affect students' skills, research credibility, and academic integrity. They also worried that relying on AI could exacerbate issues such as cheating and plagiarism. However, the teachers suggested some strategies that educators and students could adopt to ensure a smooth experience while using such a tool inside and outside the classroom. They emphasized the necessity of controlling

and guiding students' usage to prevent issues like plagiarism and authorship, transparency, originality, and academic integrity, such as written assignments and scientific research papers.

•Pedagogical Implications

This research paper aimed for contributing to the field of education and research papers. The study aimed to explore the ethical and moral concerns of using AI in EFL learning and scientific research, specifically in the field of integrating in EFL classrooms and scientific papers. Given the rapid advancement of AI tools in particular, and the growing reliance on its educational applications, the researchers had devoted this section to proffer a set of suggestion and ethical and moral considerations include incorporating ethical and moral guidelines in institutions, human reviewing of AI-generated results, training programs and workshops about how to use AI responsibly, increasing cooperation and collaboration with foreign countries, and the rational use of innovative AI tools in academic research. These recommendations are designed to be applicable at various levels of the educational system, evolving pedagogical needs of students and optimizing teachers and students to expertise in exploring AI tools use like AI tools for translation including DeepL, Google Translate, Trados Studio, QuillBot Translate. Also, AI tools for summarizing documents such as ChatPDF, Scholarcy and Sharly AI Summarizer. And, AI Tools for extracting data from articles and books like Elicit, Consensus AI, Semantic Scholar and Scite.ai. As well as AI tools for AI Content Detection mentioning GPTZero, Scribbr, AI Detector and Plagiarism Detector ,and AI Checker. The insights provided aim to guide teachers to effectively guide and control students' usage to AI tools into EFL classes and scientific research, leading to avoid plagiarism in academic research and make students aware of the ethical and moral considerations of using AI tools.

The researchers have created a portfolio on this topic, which includes ethical and moral guidelines and useful tips about using AI in academic research intended for other researchers and teachers. This portfolio is a type of mini-project and will soon be printed and be available

in libraries for researchers to help them in their research journey.

a. Guidelines and Procedures

It is crucial to establish explicit standards and guidelines for utilizing AI tools in the classroom and in scientific research to guarantee academic integrity and adherence to educational goals and ethics. The purpose of these rules is to clearly define the suitable and ethical and moral usage of AI, with a focus on its role as an additional tool rather than a major source of learning. Teachers should instruct students about the possible limitations, such as over-dependence on AI-generated content, which can hinder the development of critical thinking and problem-solving abilities. The guidelines should, moreover, tackle worries regarding plagiarism by enforcing stringent regulations that mandate students to reveal the utilization of AI tools and appropriately attribute any AI-generated work.

Moreover, teachers can allow students to use AI tools, guide their usage, and make them aware that AI helps in facilitating brainstorming sessions, offering a range of opinions, and improving language skills if they use it appropriately. However, they must be careful ; if they rely on it completely, they will destroy their abilities. To minimize any disadvantages, educators, institutions, and universities should promote a clear policy and principled guidelines for AI tool usage.

b. Professional Development

Comprehensive training for teachers on the capabilities and limitations of AI tools is essential for realising the ethical and moral concerns of using it in classrooms as well as in scientific research. Professional development programs must focus on educating teachers on the utilization of AI to improve learning outcomes and tackle ethical and practical difficulties that may arise. The workshops should encompass a variety of subjects, including the ethical and moral issues of relying on AI tools, strategies for guiding its usage into different modules, and methods for controlling its influence on student learning and skills. Teachers should

receive training to effectively evaluate the limited abilities of AI tools and provide guidance to students. By training teachers with the essential skills, professional development guarantees that they can confidently be able to use or detect AI and to guide their students, enabling them to use AI without plagiarism. This ongoing training will also assist teachers stay updated with innovations in AI technology and continuously be aware about their usage.

c. Balancing AI and Personal efforts

Using AI tools as an additional tool for enhancing the learning process, rather than replacing student efforts is vital for maintaining a balanced and effective use of AI. AI tools like ChatGPT can provide researchers with rapid data, literature review analysis and assistance in drafting scientific content, simplifying various stages of the research process. However, it is essential to integrate these tools ethically and morality and responsibly to validate the research authority and originality. The use of AI should support rather than replace researcher's effort, ensuring critical interpretation and academic rigor, by maintaining transparency, avoiding data bias and properly attribute AI-generated data. The ethical and moral concerns validate research papers credibility, originality and authenticity.

•Suggestions for Future Research

This study opens multiple avenues for further investigation into the ethical implications of integrating AI in scientific research and language education. Addressing the current study's limitations and expanding its scope can help develop a more comprehensive understanding of AI's role, its potential risks, and its responsible use. The following suggestions are proposed for future research:

- Future research may explore the ethical and moral and pedagogical implications of AI use across diverse proficiency levels, beyond Master's students. Investigating how AI tools help students at various stages, focusing on responsible usage practices that suit different educational needs.

- Future research may target different roles of AI in scientific research and education. Exploring the differences between human abilities and AI abilities.
- Future studies may examine the long-term effect of AI tools usage on students. These studies should examine writing proficiency, motivation, grades, and over-all learning.
- Future researchers may investigate the potential impact of AI on teachers' workflow and workload in classroom. This future study will reveal how the continuous interaction with AI influences the students' productivity in classroom with the existence of such a tool.
- Pedagogical strategies for ethical and moral integration of AI must be developed. Research may also address the necessity to teach students and teachers how to use such a tool to avoid some ethical problems such as cheating and plagiarism.

• Limitations

While this study provides valuable insights about the attitudes towards AI in scientific research, several limitations raised when interpreting the findings. One essential limitation is the understanding of AI's ethical and moral implications among students. The limited practical experience with AI tools in research contexts among the Master Two students means their attitudes towards ethical and moral considerations might be based on incomplete or theoretical understandings rather than direct engagements with ethical concerns. Without firsthand experience navigating issues like data privacy, authorship, or the potential for bias in AI-generated results, their perspectives on these crucial ethical aspects may lack the depth that practical application would provide. Furthermore, the limited generalizability of the findings presents another key constraint. The sample, drawn from Master Two EFL students and teachers of particular department and university in a particular region of Algeria, constrains the applicability of these results to broader academic or research communities. Attitudes towards the ethical and moral use of AI in scientific research can be influenced by various factors, including disciplinary norms, research methodologies, and institutional

policies, which may vary significantly across diverse educational contexts. Therefore, the findings from this specific sample may not accurately reflect the ethical and moral considerations and attitudes prevalent in other fields of study or research environments.

Finally, the depth of data concerning ethical and moral considerations gathered through the chosen research instruments may be a limitation. While the questionnaire captured students' general impressions of AI's usefulness and concerns about credibility, the limited number of questions specifically examine ethical and moral issues and the open-ended questions might not have fully captured the complexities of participants' ethical and moral reasoning and awareness. Similarly, while the focus group with teachers provided valuable qualitative insights, the time constraints inherent in such discussions may have limited the thorough exploration of the multifaceted ethical and moral challenges associated with AI integration in scientific research. Future research could benefit from employing more targeted and in-depth qualitative methods to elicit a richer understanding of the ethical frameworks and concerns held by both students and researchers.

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Appendices

Appendix A: The Questionnaire

Appendix B: The Focus Group

Appendix C: Teachers' Responses to the Focus Group Questionnaires

Appendix D: Portfolio*:* Ethical Guidelines of Using AI in Scientific Research

Appendix A

The Questionnaire

Dear students,

You are kindly requested to answer the following questions, which are dedicated to collect data for the accomplishment of a master dissertation. The study aims to investigate the ethical considerations associated with the integration of artificial intelligence (AI) in scientific research papers. We do guarantee that all data will be treated with confidentiality, anonymity and non-traceability.

Part One: Personal Background					
1	Have you ever used technology in your language learning?			Yes ☐	No ☐
	If yes, how often do you use it?	Rarely ☐	Sometimes ☐	Often ☐	Always ☐
2	Which type(s) of technology do you commonly use? (select all that apply)				
	Laptops/Desktops			☐	
	Tablets			☐	
	Smart phones			☐	
	Interactive Whiteboards			☐	
	Online Learning Platforms			☐	
	AI chatbots			☐	
	Other: (please specify) ……				
3	How did you learn about AI tools for language learning?(select all that apply)				
	Online resources			☐	
	Recommendations from teachers			☐	
	Peer recommendations			☐	

	Academic journals			☐
	Other: (please specify)……			
4	How can you describe your previous experience with AI?	Basic ☐	Intermediate ☐	Advanced ☐
Part Two :Artificial Intelligence in Education and Research				
5	Have you used AI tools in your language learning process before?		Yes ☐	No ☐
	If yes, which AI tools have you used the most ?(select all that apply)			
	Grammarly			☐
	Duolingo			☐
	Reverso			☐
	ChatGPT			☐
	Gemini			☐
	Other (please specify):……			
6	How helpful do you find AI tools in enhancing your EFL learning experience?	Not helpful ☐	partially helpful ☐	Extremely helpful ☐
	If it is helpful, which language skill(s) does it enhance the most? (select all that apply)			
	Listening skill			☐
	Reading skill			☐
	Speaking skill			☐
	Writing skill			☐
	Grammar proficiency			☐
	Vocabulary development			☐
	Pronunciation accuracy			☐
7	Do you believe AI can enhance the motivation in education?		Yes ☐	No ☐
8	AI tools significantly improve the language skills of EFL learners	Strongly Agree ☐	Agree ☐	neutral ☐	Disagree ☐	Strongly disagree ☐
9	Do AI tools help you to improve your academic writing skills?		Yes ☐	No ☐

10	Have you used AI tools in your own research before?				Yes ☐	No ☐
	If yes, which area(s) of education and research benefit most from AI, in your opinion? (select all that apply)					
	Personalized learning					☐
	Data analysis					☐
	Administrative tasks					☐
	Enhancing student engagement					☐
	Other (please specify) :……					
11	Integrating AI tools into research activities is important and necessary.	Strongly Agree ☐	Agree ☐	neutral ☐	Disagree ☐	Strongly disagree ☐
12	How helpful do you find AI tools in your research process?		Not helpful ☐	partially helpful ☐	Extremely helpful ☐	
13	Would you recommend the use of AI tools to other EFL learners?			Yes ☐	Neutral ☐	No ☐
Part Three : Ethical and Moral Considerations of Using AI in Scientific Research						
14	Are you aware about the ethical and moral issues related to using AI tools in your scientific research?			Yes ☐	Neutral ☐	No ☐
15	How much do you trust AI feedback and output?	Not at all ☐	very little ☐	Some what ☐	quite a bit ☐	Completely ☐
16	Do you think that the institutions should allow students to use AI tools in research?			Yes ☐	Neutral ☐	No ☐
17	In your opinion, which ethical and moral issues are most critical regarding AI use in research? (select all that apply)					
	Data privacy					☐
	Informed consent					☐
	Algorithm transparency					☐
	Prevention of bias					☐
	Accountability mechanisms					☐

	Other (please specify):……..					
18	When I engage in debates with AI tools,the output often changes based on the way and words I choose .	Strongly Agree ☐	Agree ☐	neutral ☐	Disagree ☐	Strongly disagree ☐
19	I believe that AI tools can gather personal data and chat history.	Strongly Agree ☐	Agree ☐	neutral ☐	Disagree ☐	Strongly disagree ☐
20	The output of chatbots is always accurate and does not need human reviewing.	Strongly Agree ☐	Agree ☐	neutral ☐	Disagree ☐	Strongly disagree ☐
21	Is it important to have ethical and moral guidelines for AI in scientific research?	Not important ☐	Slightly important ☐	Moderately important ☐	Quite important ☐	Very important ☐
22	What measures do you think should be implemented to ensure ethical and moral AI usage in research? …… …… …… …….					
23	How do you perceive the role of AI in future scientific research? …… …… …… …….					

Thank You.

Appendix B

Focus Group Questions

I/Teaching Experience

1/ What technology tool(s) you are actually using in your language teaching process?

a-What technology tool(s) you prefer to use in your language teaching process?

b-To what extent do you think they are beneficial in EFL classes?

c- Have you ever used AI tools or chatbots in class?

2/ What do you think about incorporating AI into EFL learning classrooms?

a-What do you think are the attitudes of EFL learners towards including AI in teaching-learning process?

b- Do your students utilize AI to do their written assignments?

c-If yes, can you discover that?

II/ AI in Education and Research

3/ To what extent do you think AI tools can improve students' EFL learning experiences?

a- In your opinion, how helpful is AI for students with different levels of academic writing proficiency?

4/ How do you identify the role of AI in scientific research paper writing?

a-Do you think AI threatens the integrity of research writing?

b-What are AI's positive and negative impacts on scientific research?

5/ Would you advise EFL learners to employ AI tools in their learning process and scientific research?

a-Do you have concerns that students can cheat in exams using artificial intelligence

III/ Ethical and Moral Considerations of Using AI in Scientific Research

6/How familiar are you with the concept of ethical and moral AI use in education?

a- Do you believe AI usage should be integrated into the curriculum?

b-Are students sufficiently aware of the ethical and moral implications of AI use in their studies?

7/How do AI tools influence the originality and authorship of research papers?

a-To what extent is the data produced by artificial intelligence accurate, reliable, and credible?

b- To what extent can AI introduce biases in research writing?

c- Do you think AI tools can collect personal information and conversation records?

8/What policies should universities, institutions and journals adopt regarding AI use in scientific writing?

a-How would you define the role of a teacher in promoting ethical and moral AI practices?

9/ How do you balance promoting innovation through AI tools while maintaining ethical standards?

10/ How do you perceive the role of AI in future scientific research?

a- How should the education system evolve to address the future challenges of AI usage in academic research?

Appendix C

Teachers' Responses to the Focus Group Questionnaires

Interviewer: Greeting and introducing the focus group. First question is what technology tool or tools you are actually using in your language teaching process?

Teacher B: First, what do you mean by AI?

All the participants: Artificial intelligence.

Teacher B: Yes, just to get the meaning.

Teacher A: The question is about the tools that we are using before or the tools that we wish to use or we want to use? Because sometimes we do not have access to all tools, we want to use them but we do not have access. For instance we are using the data show and we sometimes can bring things and objects and we try to make them realistic things but there are those virtual tools that could be used in classes but we do not have access to like the 3Dvirtual environment. This tool enables the student to create an environment inside the class and to be part of this environment, I don't know it can be in the hotel it can be in the airport and to feel himself or herself part of this environment I want to use this too but unfortunately we do not have choice.

Teacher C: We are not allowed to use this kind of technology

Teacher A: Especially in oral expression, we need them but we are using just Data show.

Teacher B: Sometimes we select an object that is between our hands to show our students.

Teacher D: I'd like to answer this question according to my experience in teaching the reading module, I do ask students to ask students to have electronic dictionaries to help them translate difficult words.

Participants: Yes

Teacher D: We prefer students to use tablets and sometimes ask them to bring a real dictionary, no one does nowadays they say it's expensive... So I ask them to download the app and always have it in there smart phones, yes they are easier to use

Teacher E: Well I believe in the use of the mobile assisted language learning for enhancing student's language skills specifically maybe written expression I ask students to use their mobiles in order to search for words they don't know, they rely on the AI but wisely.

Teacher F: Even though you stop them from using it they will use it.

Teacher E: Yes because I try to change the positive side and in fact are this mobile maybe this the AI writing tools that enhance in writing skills

Teacher A: When I attended a test, it was a mobile assisted test do you remember it was a translation mobile assisted, when one teacher asked them to use the mobile which was a good idea and new.

Interviewer: Miss you said that you allowed your students to use AI in classroom?

Teacher D: Yes, I allowed students to use the ChatGPT because I know they will be using it. So it's if it's used as a dictionary or to generate ideas.

Teacher F: Yes it depends on what we are teaching.

Interviewer: It's a guided use of ChatGPT like ethical and legal

Teacher D: It's related to the context and it's not going to be outside and to not kill the creativity because it's a reading, so it's a guided if I'm asking them for a certain tasks like learning new vocabulary or to overcome vocabulary difficulties while reading so I let them of course use it.

Interviewer: To what extent do you think they are beneficial in EFL classes?

Teacher D: Yes, they are beneficial, because I have noticed that, and I do remember some students know how to use it, they try to be creative via ChatGPT without relying on it.

Teacher A: Yes not all of the students, I think few students are aware of the way they need to use it and know the strategy.

Teacher D: It's how to use it

Teacher A: It's the how it's the how things used, however other students need to be instructed and guided.

Teacher D: Yeah and I checked what they use on their phones and I checked the questions they ask in the case of teaching a book and they write what are um information that no one knows about this book, so it is something unusual and good not bad I wouldn't consider that bad.

Teacher F: Of course they should know how to use it otherwise they will be fall in plagiarism.

Teacher B: Exactly, so it depends on how to use this tool.

Teacher F: Yeah not everything is correct which is given by the AI.

Interviewer: Exactly how to make them distinguish between the correct and incorrect answers and to highlight them.

Teacher A: Yes sometime, one of the my students prompts an essay using AI it was in discourse analysis I asked them to analyze the passage it was a very literary passage a very literary style and then when I asked them to analyze it using some steps in this course analysis I found them analyzing it the way they analyze a scientific text and I made the distinction that the two are different and the steps are different when the type of the text is different of course so they took the same steps of the scientific text and they applied it on the literary text which is wrong that's why I say when it comes to issues that are related to context -contextual issues- ChatGPT and other tools of artificial resources, cannot provide accurate answers.

Teacher F: Yes just an example one of the students wanted to know names of the Algerian writers who wrote using the English language and AI gave them names that do not exist at all so you should know what you are searching about first, and to double check it.

Teacher D: I think the teacher you should go to Google already to check

Teacher F: Yeah sometimes over some non-existent references you cannot find them at all,

Teacher A: Yes because we tried this once and if they gave us a list of references and scholars in the book when we try to check with the ideas if you check the author with the ideas you feel recognized that sometimes the answers that ChatGPT provides are about let me say general, the references are about academic writing and the references are something related to civilization. You see the problem!

Teacher E: The purpose is just to answer whatever the answer is yes.

Interviewer: So have you ever used AI tools or chatbots in classrooms?

Teacher A: So we use them to teach students, what I found, when I went to a conference abroad and they showed us. Well in our country, I do not think that we're ready to use it in our classrooms but I found them insisting on using ChatGPT in their classes, for instance in writing classes what they asked students to do, they asked students to ask ChatGPT to write a paragraph for them especially I said yes it's about writing and then they take the ChatGPT product and they try to paraphrase it or to correct it or to correct it especially when it comes to academic writing because generally the language of ChatGPT is very literally so in scientific research papers it's not very appropriate that's why they try always to paraphrase and to make it more academic.

Teacher F: Yes but we have some issues regarding the use of ChatGPT in writing, some students get frustrated, they rely on ChatGPT and they think that they are not capable of writing the same size exactly. We have also another problem which is the over-dependence

they rely a lot on ChatGPT they can't even write regardless of the positive effect of ChatGPT and enhancements we have some issues and negative impacts.

Teacher E: We find same answers for many students.

Teacher A: Yes this is good this is good we know that this is ChatGPT makes life easy for us.

Teacher B: So it makes students lazy, they don't rely on themselves.

Interviewer: could you name an app or a Chatbots that they use that you already use yes like ChatGPT, like Gemini?

Teacher A: Yes they know, some other tools that are used for translation they are very common they and they are used by most students especially in your case because we ask you to translate the Abstract into Arabic and French they do it using the chatGPT tools, so the most common tools are related to translation and there's the grammar tools too.

Teacher B: Which one?

Teacher A: Grammarly, and Reverso is very common as well.

Teacher D: you can also use it in the speaking skill when students are asked to talk to AI and the AI correct your mistakes and then they discuss.

Teacher A: Well there's a teacher here who used it once you she brought that artificial intelligence tool and she could create a sort of dialogue between this tool and the students as a partner yes which was a very good activity.

Interviewer: The second question is what do you think about incorporating AI into EFL learning classes?

Teacher F: It will be beneficial at the same time it should take into consideration because of the drawbacks.

Teacher A: Yeah it could be good for motivation students are motivated to learn yeah something new but meanwhile teachers need to be careful, as you can control that use the teacher himself or herself should know things about this apps.

Interviewer: So that you allow your students to use it but with restrictions.

Teacher D: Yes**,** I think this promotes autonomous learner.

Teacher E: Personally I do not in the module civilization but they use it despite that.

Teacher A: Yeah well it depends on the modules as my colleague just mentioned, soI don't think that they can use in literature and civilization that it will be called cheating.

Interviewer: Yeah

Teacher E: Yes that's why I have said the same answer.

Teacher F: Okay, what about in terms of discussions I think it will be beneficial of course maybe for ideas, they can brainstorm ideas.

Interviewer: So what do you think are the attitudes of EFL learners towards including AI in teaching learning process?

Teacher B: They should use it for motivation.

Interviewer: You just mentioned that your students use AI tools, so can you discover that like without using checkers?

Teacher A: Yeah we can guess.

Teacher E: The teacher knows the style of his students.

Teacher A: There's words used by ChatGPT, makes it easy to discover that they used AI tools.

Teacher D: And to be fair, there are students with a good level. So when we have a research paper we pass it through the checker to ensure transparency. It's doable for teachers, it's not an obstacle.

Interviewer: Question number four, how do you identify the role of AI in scientific research paper writing?

Teacher A: Because we are about to write scientific papers, they can be articles, they can be dissertations.

Teacher F: Do not use them in the theoretical part. This is number one, number two, for the practical part, maybe it helps you in analyzing the interpretation of ideas. I think you do not know about the scientific papers, even you would like to ask the question concerning the way of maybe discussions of analyzing and interpreting.

Teacher E: Even in the theoretical part, it can help, in organization and brain storming.

Teacher A: And sometimes you can even ask ChatGPT, would you please provide me with some new references and then you go and check whether the references are active.

Teacher F: It helps in giving you the methodology that fits your research.

Teacher A: I asked ChatGPT once about my design. I said, this is the topic I'm working on and this is the research thing I have selected, what do you think of it? And ChatGPT gives me some alternatives saying, well, it is good, but it's better to add this.

Teachers: Yes.

Teacher A: And I found the recommendations very useful.

Interviewer: Yes.

Teacher F: Specifically for the methodology.

Interviewer: Yes, right. So, do you think AI threatens the integrity of research writing?

Teacher A: Integrity!

Interviewer: Yes.

Teacher A: Of course, yes. Research writing is something sacred for us. Listen! When it comes to research writing, we have the word and the idea.

Interviewer: Yes.

Teacher A: So, we have stealing. There are some people who steal the word, and there are some people who steal the idea. And there are some people who steal both. I think, when it comes to stealing the idea there are some people who cannot write. So, if I take some vocabulary terms, I think this wouldn't have that effect on their level.

Teacher F: Yes.

Teacher A: But, if you steal the ideas as they are and put them in your research paper, this will be more threatening. I think that this will be more threatening to the research making process.

Interviewer: Yes.

Teacher D: And I think it's, you can tell, anybody would tell when something is not original or not. Because to use the AI, it's like using a friend and you're asking, do you think my work is good? How do I organize my ideas? How do I do this and do that? And that's all. It doesn't affect.

Interviewer: Yes, so, what are AI's positive and negative impacts on scientific research?

Teacher A: I think we have mentioned that.

Interviewer: Yes. Question number five. Would you advise EFL learners to employ AI tools in their learning process and scientific research?

Teacher B: But it should be controlled, of course.

Interviewer: In scientific research.

Teacher A: I told you, they asked me whether they can use some artificial intelligence tools while writing their research papers. It's not about studying, but while writing their research papers. I said, you can ask ChatGPT to organize things for you.

Teacher F: Exactly.

Teacher A: You can ask ChatGPT as well, not just ChatGPT. You can use other tools, for instance, to check plagiarism. It's also artificial intelligence.

Participants: Yes.

Teacher F: And how to use paraphrasing tools also. Even ChatGPT will give something.

Teacher E: Do you remember what you were talking about two days ago? One of the students paraphrased. During the paraphrasing, ChatGPT paraphrased even though the vocabulary from the poem, and integrated them within the text.

Teacher A: So the poem was like, it is a poem, but meanwhile it's a poem paraphrased.

Teacher F: Yes. A poem Paraphrased

Teacher A: So it was catastrophic! You know what you mean? That passage, you do not understand anything.

Teacher F: It lost the meaning.

Interviewer: So we move to part number three.

Teacher A: The last part?

Interviewer: Yes. The ethical considerations of using AI in scientific research. Question number six. How familiar are you with the concept of ethical AI used in education?

Teacher A: I think that this is new to our educational system.

Teachers: Yes.

Teacher A: You know that students themselves are the ones who push us to read and know things about artificial intelligence. But if you consider our ministry, there is nothing that incites the use of artificial intelligence or how to use artificial intelligence in education, et cetera.

Interviewer: Yes. Right.

Teacher A: I think it is an alien to our educational system.

Interviewer: So, do you believe ethical AI usage should be integrated into the curriculum?

Teacher E: No. I don't think so.

Teacher A: But they are doing it. We have introduced artificial intelligence to Master One students this year.

Participants: Yes.

Teacher A: They are going to study a couple of sessions this month of artificial intelligence.

Interviewer: Yes.

Teacher A: I do not know whether it is going to be fruitful or not, we do not know. But they are going to teach them how to use artificial intelligence.

Interviewer: I think it's good to highlight the guidelines of using AI. So they don't make mistakes.

Teacher A: Well, I do not know. Probably when we teach them “Artificial intelligence” We will be encouraging them to cheat using artificial intelligence. This is the mentality.

Interviewer: Yeah.

Teacher A: Well, if we include this module in other countries, probably they'll be able to distinguish what is right and what is wrong.

Teacher D: To be aware of it.

Teacher A: That’s it. But in our culture, we encourage them. It's a sort of encouragement for me. I am against that.

Teacher D: I'm with you.

Teacher A: I'm against that.

Interviewer: What about you miss?

Teacher G: Against that, I'm sure.

Teacher A: I am against teaching artificial intelligence.

Teacher D: Maybe sometimes it’s good. Sometimes.

Interviewer: yes, if we teach them the ethics, how to use it.

Teacher F: Maybe the ethical considerations

Teacher D: Yes. That is what I mean.

Teacher F: Yes. Maybe

Teacher E: They don't care about it.

Teachers: They don't care about ethics, most of students.

Teacher A: Do you know the proverb that says the forbidden fruit is the sweetest?

Participants: Yes.

Teacher A: That is it. If we say do not use that, then do not do it. That's the first thing that they do.

Teachers: Of course.

Interviewer: So are students sufficiently aware of the ethical implications of AI in their studies?

Teacher E: Yes, they are.

Teachers: They are.

Teacher A: They are. They know those things better than teachers by the way.

Teacher F: But they deny.

Teacher A: Yes, they deny.

Teacher G: They deny and they are using it. They don't care

Teachers: Yes**,** They don't care.

Interviewer: Yeah, okay. Question number seven, how do AI tools influence the originality and authorship of research papers?

Teacher A: Originality.

Interviewer: Yes.

Teacher A: Originality is linked to creativity. Well, just killing creativity and originality, but I think we will have some authorship conflicts, in the future. So if I am writing something using ChatGPT and somebody else is writing about the same topic using ChatGPT, the ideas will be similar, and then every one will be saying that the other person has just taken his or her idea. And all those ideas are similar.

Participants: Yes, right

Teacher A: Well, even so, it's like I gave my friend my paper to read it, and then he or she took some ideas from the paper.

Teacher A: And all those papers are exactly the same, because all people are using just ChatGPT.

Teachers: Yes.

Teacher D: For me, it is against originality.

Interviewer: Yes. What about the accuracy and reliability of it?

Teacher E: Yes. Created by ChatGPT means it’s not credible.

Teacher D: I don't think the data are produced by AI, what do you mean first by data produced by artificial intelligence? Because we produce it by real life experiences. We never get ChatGPT helps you deal with interpret as Teacher E said. It doesn't generate. I've never seen that because that would be lying.

Teacher D: You could never simply get it.

Teacher F: Just for all the animations generated by the AI are not reliable.

Teacher D: Absolutely. You cannot even mention it because it's not, it's not real. Do you understand my idea? I think there's something wrong with the question because it’s data produced by AI not generated

Teachers: You're right

Teacher F: Just looking for the interpretation and discussion using it with these tools help you to discuss, to interpret the results.

Teacher A: The proof of that is that ChatGPT never provides in-text citation. Never!

Teacher B: So Chatgpt for instance presents the information without citation. You don’t know from where this information has been taken.

Teacher F: But it helps you to write using the APA style maybe.

Teacher A: This is true. But you need to re-check. They are not reliable.

Interviewer: So to what extent can AI introduce biases in research writing?

Teacher A: Bias. I think there are some topics that are considered very sensitive. Especially those related to stereotypes, related to religion, related to race, and taboos.

Participants: Yes.

Teacher A:I do not think that chatGPT can answer any of these questions. And even if they provide answers, these answers will be incomplete. It would be biased, because they will be answering from a given perspective. And this perspective is about the information that have been learned before. Because it is a learning machine.

Participants: Yes.

Teacher D: Yes, Chatgpt is not culturally competent.

Teacher A: That's it

Teacher D: It's not culturally competent. One of the students asked Chatgpt about the current war going on. And they would consider some things that we don't agree with. And it's not culturally competent to answer accordingly to the person who is asking, a Muslim or an Arab. So let's not forget that the information is human made.

Participants: Yes.

Teacher D: So it depends, for example, where the information comes from Google, and you asked about the state of Israel. So if it's up to us, we wouldn't. We wouldn't rely on that.

Teacher A: I agree.

Teacher A: That's why I said things related to culture and things related to context cannot be discussed or made by ChatGPT.

Interviewer: Do you think AI tools can collect personal information and conversation records?

Teacher F: Which question is?

Interviewers: Seven C.

Teacher D: Absolutely.

Teacher A: You mean that they, chatGPT saves information?

Interviewer: Yes. Exactly.

Interviewer: Like ChatGPT rooster or something like that. When you ask them about your personality, it gives you the details of your personality.

Teacher E: Yes. And you should register with an email. Email should have a name, so according to the questions you ask, it will give you talks about your personalities at the end.

Teacher A: If Facebook is using the same email, for instance, it can gather your personal data from your social media.

Teacher E: It will talk about your interests, for example.

Teacher D: So it's not we think, we believe. It's a fact.

Teacher A: Once I asked chatGPT about a conference, I said, I'm going to participate in a conference its title is this and that, and I want some ideas. Chat GPT provides some ideas. And then after a week, I asked chatGPT another question. So, before answering my question, it asked how was your conference?

Teacher D: Yes, it happened to me. I asked for a recipe without spices, and another time I asked for another, and It wrote, since you don't like spices. It was like, it knows me very well.

Teacher B: Oh my God.

Teacher D: It was surprising.

Teacher A: Yes, it is

Interviewer: So, question number eight. What policies should universities, institutions, and journals adopt regarding AI use in scientific writing?

Teacher F: Policies!

Interviewer: Yes, policies. Should they integrate them?

Teacher D: Yes, of course. Universities should organize workshops too.

Teacher A: Workshops, conferences, about AI use.

Interviewer: For the teachers only?

Teacher A: For the teachers and for the students as well. I told you before that the forbidden fruit is sweetest. So, if we keep making students frightened to use ChatGPT, they are going to use it because this is the forbidden fruit for them.

Teacher D: Yeah.

Teacher B: Exactly.

Teacher A: But if we expose the problem in front of everyone, this is the way we should use ChatGPT. I think that they will be more aware of the way they use it.

Teacher F: They will use it rationally.

Interviewer: Okay. How would you define the role of the teacher in promoting ethical AI practices?

Teacher G: The role of the teacher.

Interviewer: Yeah. You as a teacher, what is your role to introduce the guidelines for your students?

Teacher F: Giving instructions.

Teacher A: For me, everyone who uses ChatGPT should be punished. There should be some punishment.

Teacher B: There is a kind of punishment that can be proposed by the teachers.

Teacher A: Yes. Last exam, of discourse analysis, they got like two or three because their answers were completely wrong.I told them, it cannot work with discourse analysis. They got two and three. Then I brought them in front of all their colleagues and I said, all these six students have used ChatGPT, it's a sort of embarrassment for them.

Participants: Yes.

Teacher A: Then I asked them, you choose, every student has a report. I said, I didn't, I didn't check use intern or something. I said every student has a report on his paper and the report said that you have used ChatGPT with a percentage of 70%.You choose; It's either a zero or a report! So, they all selected the zero. I said, next time, you will not be given the opportunity to choose, you will get them both. And I didn't check using intern or anything else I just said it, I said, there's a report. So I will see, this second semester whether they are going to use or not.

Teacher B: So they use it in a wrong way.

Interviewer: Question number nine. How do you balance promoting innovation through AI tools while maintaining ethical standards?

Teacher A: I don't think that we can do both.

Teacher D: I wouldn't call myself I'm promoting AI at all. I mean, how can you use it to benefit from ChatGPT on hand, and meanwhile to maintain ethicality?

Teacher F: It's difficult. It's challenging.

Teacher A: For me, it is impossible. We cannot. We will be still cheating.

Interviewer: Question ten. How do you perceive the role of AI in future scientific research?

Teacher A: In the future?

Interviewer: Yes. In the future.

Teacher B: What will happen in the future?

Teacher A: I think that the future will be full of artificial intelligence. I think that teachers and researchers will do the best they can do to use the maximum of ChatGPT and any other artificial tool.

Teacher A: Listen! We are in a society that is very rapid. Okay!

Teacher E: Have you heard about, sorry, ChatGPT to be used to humanize what's happening?

Teacher A: It is a process, by the way. They create an answer for you and then they humanize it. And they make it human-like.

Teacher F: There’s a tool that you provide it with your style to emitate it in the future.

Teacher B: Even AI can steal human style.

Teacher F: Yes.

Interviewer: Do you think one day teachers will accept to allow students to use AI tools in their classroom?

Teacher E: Absolutely not.

Teacher A: For me, I think that there will be a danger of killing the creativity.

Participants: Yes.

Teacher B: Yes, we can not talk about creativity in the future.

Teacher A: I think, it depends on the domain itself.

Teacher E: I’ve a question; those who created ChatGPT are they using it. Why they were not influenced like us?

Teacher A: Who knows?

Interviewer: There is a quote that said that AI nowadays is going viral.So, you are either being a promoter of AI, or user of AI.

Teacher A: There is no other option. For us as teachers, it’s impossible to allow students to use ChatGPT because we care about the style. However, I think, in scientific domains, AI can generate information that are very typical and very accurate. See! So in other domains they can use AI, but in our domain they can not, because we care about the language more than anything else.

Interviewer: Yes. So, going to the last question, how should the education system evolve to address the challenges of artificial intelligence usage in academic research?

Teacher E: Like for the policy maybe, for the policy created.

Teacher A: To address the challenges of artificial intelligence usage in academic research.

Teacher D: AI detector and research detectors.

Participants: Yes.

Teacher A: I think that we have also to make some co-operations with some other countries. I think they know better, they have Experience more than us.

Participants: Yes.

Teacher A: And they can help us. They can help us by providing us with AI tools that are currently used and probably provide some alternatives for us. We are not a technologically developed country and we do not know much about that. And so, I think having that sort of co-operation will help us a great deal with us domain.

Teacher G: And of course we need to encourage scholarships for teachers. Not just teachers of computer science but even teachers of English for instance. If we go abroad I think we can invest in those teachers' experiences and we can gain some experiences related to the way we need to use our special intelligence tools.

Interviewer: Yes. SoThank you so much.

Interviewer: Do you want to add something or do you have any comment?

Teacher F: I like the topic. It is a relevant, timely topic.

Interviewers: Thank you.

Teacher F: Congratulations for the choice. And for the supervisor.

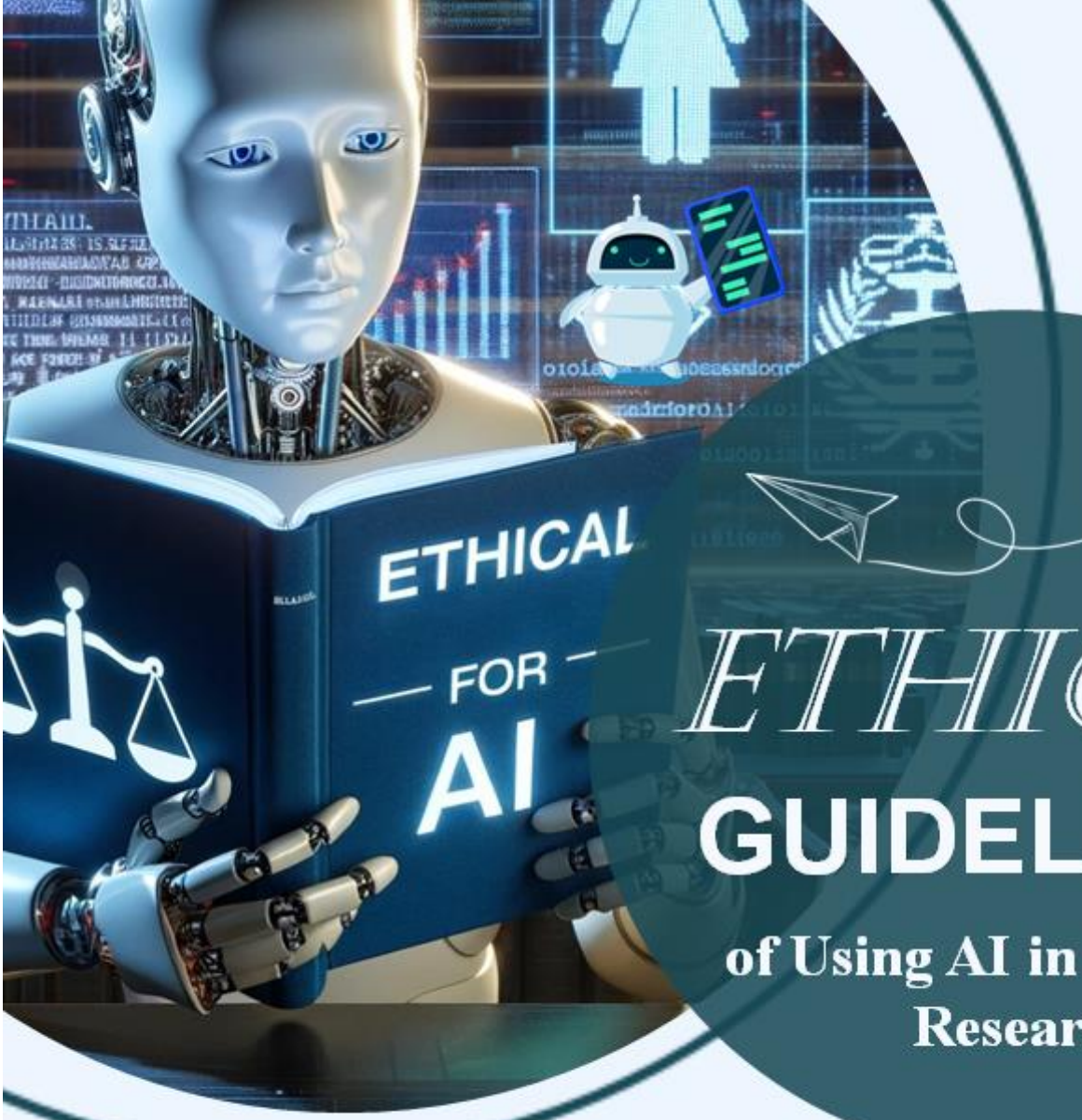
Teacher A: Thank you.

Teacher F: It's a good choice of topic.

Interviewer: Thank you so much for your discussion. We really appreciate it.

Appendix D:

Portfolio*:* Ethical Guidelines of Using AI in Scientific Research



ETHICAL GUIDELINES

of Using AI in Scientific Research

To Researchers and Educators

Created by

GUELLAB Djihan

ATTALAH Bochra

Revised by

Dr. YOUSFI Nabila

UNIVERSITY OF ABBES LAGHROUR -KHENCHELA, ALGERIA-
DEPARTMENT OF ENGLISH

"The spread of computers and the Internet will put jobs in two categories. People who tell computers what to do, and people who are told by computers what to do."

Marc Andreessen

Outline

Introduction

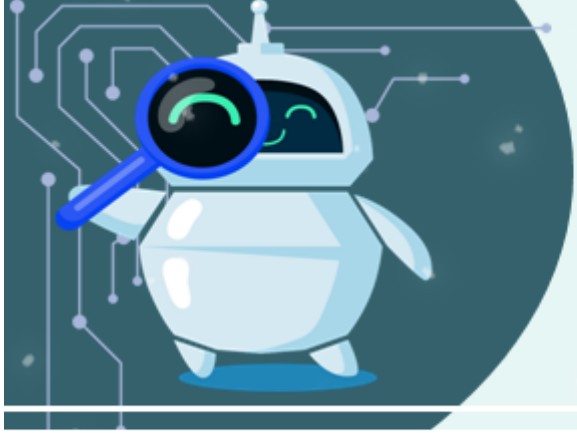
Different Categorizes of AI Tools

Ethical Concerns

Ethical Guidelines

Problems and Solutions Related to Using AI in Scientific Research

Conclusion



Introduction

The integration of artificial intelligence in scientific research has revolutionized the way scientists conduct experiments, analyze data, and generate insights.

This work explores the ethical issues arising from the use of AI in scientific research. It includes a table of AI tools with their functions, limits, and ethical considerations. The document aims to inform and guide responsible AI use, especially for researchers, educators, and students. Its core message is to promote awareness and ethical practices when applying AI in scientific work.

Different Categorizes of AI Tools

1. AI Tools for Extracting Data from Articles and Books

AI tool	Applications	Limitations
Perplexity AI	AI-powered search engine for retrieving precise answers from credible sources. Helps researchers find relevant information quickly.	➢May not always provide deep contextual analysis. ➢Limited interactive features compared to traditional research databases. ➢May not always interpret complex academic language accurately. ➢Limited access to payed journals.
DeepSeek	Open-source AI for research and academic applications.	➢Potential security vulnerabilities, including data leaks. ➢Privacy concerns due to data storage on Chinese servers. ➢Bias and censorship on politically sensitive topics- ➢Risk of hallucinations and incorrect outputs ➢ Scalability challenges due to high demand
Other Similar Tools	- Consensus AI - Semantic Scholar - OpenRead - Scholar AI -Lumina -Zotero -Mendeley -RefWorks	

2. AI Tools for Academic Writing and Editing

AI tool	Applications	Limitations
Author AI	AI-assisted writing tool that helps researchers draft academic papers, improve readability, and refine arguments.	➢May not fully understand nuanced academic writing styles. ➢Requires human oversight for accuracy.
TexteroAI	AI-powered writing assistant that helps researchers generate academic content, refine arguments, and improve readability.	➢May generate text that requires fact-checking. ➢Overuse may lead to loss of originality in academic writing. ➢Does not replace human proofreading for nuanced writing.
Other Similar Tools	-Grammarly -AI Writer -Jasper - Paperpal - Scribbr AI -Wordtune -Trinka	

3. AI Tools for Research and Organization

AI tool	Applications	Limitations
Research Rabbit	Assists in discovering related research papers and building citation networks. Useful for expanding literature reviews.	➢May not always provide the most recent publications. ➢Requires human judgment to assess relevance. ➢May not cover all research fields equally. ➢Subscription-based access.
ChatGPT	Assists with brainstorming, summarizing research papers, and generating academic content. Useful for drafting ideas and explanations.	➢May generate inaccurate or biased information. ➢Requires fact-checking before use in formal research. ➢Requires manual verification of citation formats. ➢Limited AI-driven recommendations for sources. ➢May not cover all academic papers.
Other Similar Tools	-Scite.ai -Docalysis -RefWork -EndNote -Connected Papers -Scopus AI	-Litmaps -Aithor.AI -Elicit -Paperdigest -Claude -Gemini

4. AI Tools for Data Analysis and Coding

AI tool	Applications	Limitations
ChartCSV	AI tool that allows researchers to interact with CSV files, analyze data, and extract insights efficiently.	➢Limited ability to interpret complex datasets without human oversight. ➢Requires structured data for optimal performance.
Google Gemini	AI-powered multimodal model that assists with text generation, reasoning, coding, and data analysis. Useful for summarizing research papers and answering complex queries.	➢May generate inaccurate or biased information. ➢Limited access to paywalled academic sources.
Other Similar Tools	-IBM Watson Discovery - OpenAI Codex - Julius AI - Power BI AI -Claude AI -Hugging Face Transformers -Wolfram Alpha	

5. AI Tools for Charts and Data Visualization

AI tool	Applications	Limitations
Tableau AI	AI-powered business intelligence tool for creating interactive graphs, dashboards, and reports.	➢Requires a subscription. ➢Complex datasets may need manual adjustments
ChartGPT	Leverage GPT-4 by OpenAI for table summarization, charting, and more. AI-powered tool that generates graphs and charts based on user prompts and uploaded data.	➢Limited customization for complex datasets.
Google Looker Studio	AI-powered tool for creating data dashboards and visual reports. Useful for research presentations.	➢Requires integration with Google services. ➢Limited AI-driven insights.
Other Similar Tools	- Edraw.AI - Julius AI - Power BI AI - Plotly AI - Google Looker Studio	

6. AI Tools for Summarizing and Paraphrazing

AI tool	Applications	Limitations
ChatPDF	AI tool that allows researchers to interact with PDFs, summarize content, and extract key insights from academic papers.	➢May not always interpret complex academic language accurately. ➢Limited functionality for highly technical documents.
OpenRead	AI-powered research assistant that helps summarize papers, extract key insights, and visualize connections between studies.	➢May not cover all academic disciplines equally. ➢Requires manual verification of AI-generated ➢May generate inaccurate or biased responses.
Other Similar Tools	-Scholarcy -Sharly AI Summarizer -Scribbr AI Summarizer -Google bard -QuillBot -Resoomer	

7. AI Tools for Translation

AI tool	Applications	Limitations
Reverso	AI-powered translation and paraphrasing tool. Helps researchers working with multilingual sources.	➢May not always capture cultural and contextual nuances in translations. ➢Limited accuracy for highly technical terms.
Trados Studio	AI-assisted translation software used for professional and academic translations. Supports human-AI collaboration.	➢Requires manual review for accuracy. Subscription-based access. ➢May not always retain technical terminology in specialized research fields.
Other Similar Tools	- DeepL - QuillBot Translate - Musely Research Paper Translator - Linnk AI Research Translator	

8. AI Tools for Plagiarism and AI Detection

AI tool	Applications	Limitations
Plagscan	AI-driven plagiarism checker used by institutions to verify originality in research submissions.	➢May not detect AI-generated content effectively. ➢Requires subscription for full features.
Scribbr AI Detector	AI-powered tool that detects AI-generated content from models like ChatGPT, Gemini, and Copilot.	➢Limited accuracy as AI models evolve. ➢Requires manual validation of flagged content.
GPTZero	AI detection tool designed to identify AI-generated text from models like ChatGPT, Claude, and Gemini.	➢May produce false positives for human-written content. Requires careful interpretation
Other Similar Tools	- Edraw.AI - Julius AI - Power BI AI - Plotly AI - Google Looker Studio	

9. AI Tools for Presentations

AI tool	Applications	Limitations
Gamma AI	Generates AI-powered PowerPoint presentations with automated slide designs and layouts.	➢Limited customization compared to manual PowerPoint editing. ➢Some advanced features require a subscription.
Slidesgo AI	AI-powered presentation maker that generates slides based on user input.	➢ Requires manual adjustments for complex presentations
Prezi AI	AI-powered tool that creates dynamic, non-linear presentations with zoomable storytelling and interactive visuals. Helps researchers present complex ideas in an engaging way.	➢Requires time to master its unique presentation style. ➢Some advanced features require a subscription. ➢Not ideal for structured data-heavy presentations.
Other Similar Tools	- Beautiful AI - Simplified AI - Presentations.AI - PPT.AI	

Ethical Concerns

1. AI systems can have **biases**, which can lead to unfair or wrong research results.
2. The **lack of transparency** makes it hard to check research findings.
3. AI tools can make **plagiarism** and improper citation more likely.
4. Relying too much on AI can make researchers **less critical** and reduce their skills.
5. AI use raises concerns about protecting **personal data.**
6. **Unequal** access to AI tools creates unfair advantages for some institutions.
7. AI outputs are not always **accurate** and need to be checked by humans.
8. AI can also perpetuate **stereotypes** or give incomplete answers on sensitive topics.

Universities and journals need clear rules for using AI in research.

Ethical Guidelines

- Always **state** clearly when and how you used AI tools in your research paper.
- Ensuring AI-generated insights are **reliable**.
- Remember that AI is a tool, not a replacement for **your own thinking** and efforts.
- Use AI tools for **language improvement**, but maintain originality in academic writing
- Make sure to **review** its output for any unfair information, especially on sensitive topics.

Ethical Guidelines

- AI should **enhance comprehension**, not be a replacement for reading full research papers.
- Ensure AI-assisted editing does not **alter academic accuracy** or introduce misleading interpretations.
- AI translations should **not replace human expertise** in highly technical fields.
- Always verify extracted data before using it in **formal research conclusions**.
- Be sure to **prevent** your research work from AI-driven misinformation.

Ethical Guidelines

- Choose AI tools **trained on balanced datasets** to minimize biases in linguistic analysis.
- If you use ideas or information from an AI tool, paraphrase it in **your own words** and cite it properly.
- AI detection tools should not be used to discredit legitimate human writing **without strong evidence**.
- Be careful about sharing **personal information or chat histories** with AI tools, as they might collect this data.
- Follow university or journal **guidelines** for AI-assisted writing disclosures.

Problems and Solutions Related to Using AI in Scientific Research

Problem 1: AI can be unfair because of biased information it learned.

Solution 1: Work to remove biases from AI programs and ensure the data it learns from is diverse and fair.

Problem 2: Students might cheat or copy work if they rely too much on AI.

Solution 2: clear rules for using AI in schools, and use AI detection to check for original work.

Problem 3: Using AI too much can make students less creative and stop them from thinking deeply.

Solution 3: Teach students how to use AI wisely, and encourage human creativity and critical thinking alongside AI use.

Problem 4: AI tools might collect private information about user

Solution 4: Avoid using AI tools that collect sensitive student or researcher data without consent.

Problem 5: AI's answers are not always correct or trustworthy.

Solution 5: Always check AI's work yourself, and remember that human review is needed.

Problem 6: AI can give answers that favor one side because it lacks cultural understanding.

Solution 6: Understand that AI has limitations in cultural and contextual knowledge.

Problem 7: Not everyone has the same access to good AI tools

Solution 7: Ensure everyone has a fair chance to use AI tools, perhaps through open-source platforms and more investment.

Conclusion

This work aims to guide ethical AI use in scientific research. It outlines key tools, their uses, limits, and ethical concerns, promoting responsible and informed practices.

ETHICAL GUIDELINES

of Using AI in Scientific Research

To Researchers and Educators

- Various AI Tools Used in Scientific Research
- Their Applications
- Their Limitations
- Relevant Ethical Guidelines

Get it NOW

UNIVERSITY OF ABBES LAGHROUR -KHENCHELA, ALGERIA-

Résumé

La présente étude vise à examiner les attitudes des étudiants et des enseignants à l'égard des considérations éthiques et morales associées à l'intégration de l'intelligence artificielle (IA) dans les articles de recherche scientifique. L'étude a employé une approche convergente à méthodes mixtes, combinant un questionnaire pour évaluer les attitudes des étudiants de Master 2 en EFL (English as a foreign language) à l'Université de Khenchela et un focus group pour recueillir des informations approfondies auprès des enseignants de l'Université Abbes Laghrour de Khenchela. Les données obtenues du questionnaire ont été analysées quantitativement à l'aide du logiciel SPSS 21, tandis que les données du focus group ont été analysées qualitativement à l'aide de l'analyse SFL (Linguistique Fonctionnelle Systémique). Les résultats ont indiqué que les étudiants ont une impression positive concernant l'utilisation de l'IA dans la recherche, soulignant son utilité pour améliorer la motivation des étudiants, leurs compétences linguistiques et leurs activités de recherche. Cependant, ils ont exprimé des préoccupations concernant la crédibilité et la fiabilité des résultats générés par l'IA. De plus, les réponses ont rapporté que si les enseignants découragent son utilisation dans l'aspect théorique pour préserver l'originalité, ils ont convenu de son utilité dans les tâches méthodologiques, mais avec des restrictions en raison de ses impacts négatifs sur la créativité et la pensée critique des étudiants. Les suggestions comprennent l'incorporation de directives éthiques dans les institutions, la révision humaine des résultats générés par l'IA, des programmes de formation et des ateliers sur la manière d'utiliser l'IA de manière responsable, l'augmentation de la coopération et de la collaboration avec les pays étrangers, et l'utilisation rationnelle d'outils d'IA innovants dans la recherche académique.

Mots-clés: Intelligence artificielle, considérations éthiques et morales, recherche scientifique, attitudes des enseignants, impressions des étudiants

ملخص

تهدف الدراسة الحالية إلى تقصي مواقف الطلاب والأساتذة تجاه الاعتبارات الأخلاقية و المعنوية المرتبطة بدمج الذكاء الاصطناعي في الأوراق البحث العلمي. استخدمت الدراسة منهجًا مختلطًا متقاربًا، يجمع بين استبيان لتقييم مواقف طلاب الماستر في اللغة الإنجليزية كلغة أجنبية(EFL)في جامعة خنشلة وتحليل أراء أساتذة للحصول على رؤى معمقة من الأساتذة في جامعة عباس لغرور خنشلة. تم تحليل البيانات المستخلصة من الاستبيان باستخدام برنامج SPSS 21، بينما تم تحليل بيانات و أراء الأساتذة نوعيًا باستخدام تحليل SFL (التحليل الوظيفي النظامي للغة). أشارت النتائج إلى أن الطلاب لديهم انطباع إيجابي فيما يتعلق باستخدام الذكاء الاصطناعي في البحث، مما يسلط الضوء على فائدته في تحفيز الطلاب وتطوير مهاراتهم اللغوية وأنشطتهم البحثية. ومع ذلك، فقد أعربوا عن مخاوف بشأن مصداقية وموثوقية النتائج التي تم إنشاؤها بواسطة الذكاء الاصطناعي. علاوة على ذلك، أفادت الردود بأنه في حين أن الأساتذة يثبطون استخدامه في الجانب النظري للحفاظ على الأصالة، فقد اتفقوا على فائدته في المهام المنهجية، ولكن مع قيود بسبب آثاره السلبية على إبداع الطلاب وتفكيرهم النقدي. تقترح الدراسة تضمين مبادئ توجيهية أخلاقية في المؤسسات، ومراجعة بشرية للنتائج المولدة بواسطة الذكاء الاصطناعي، وبرامج تدريب وورش عمل حول كيفية استخدام الذكاء الاصطناعي بمسؤولية، وزيادة التعاون والتنسيق مع الدول الأجنبية، والاستخدام الرشيد لأدوات الذكاء الاصطناعي المبتكرة في البحث الأكاديمي.

الكلمات المفتاحية: الذكاء الاصطناعي، الاعتبارات الأخلاقية و المعنوية، البحث العلمي، مواقف الأساتذة، انطباعات الطلاب.