Mohamed Khider University of Biskra
Faculty of Letters and Languages
Department of English Language and Literature

Master Thesis

Letters and Foreign Languages
English Language
Sciences of the language

Submitted and Defended by:
IbtissemKhafallah

On: June 2025

Investigating the Ethical Implications of AI Generated Content on Students' Essay Writing: The Case of Third-Year Students at the Department of English at Mohamed Khider University of Biskra.

Board of Examiners

Pr. Ahmed Bachar	**Chairperson**	**University of Biskra**
Dr. Yasser Ben Moussa	**Supervisor**	**University of Biskra**
Dr.TayebBouhitem	**Examiner**	**University of Biskra**
Mrs.AminaZohraMebarki	**Examiner**	**University of Biskra**

Academic Year 2024 - 2025

Dedications

I heartily dedicate this work to

My beloved parents;

You are the reason for what I have become now. Thank you for your continuous care and

support

My lovely friends; Sabrine, Asma, Ikhless, Sameh, Sara, sirta

I will never forget you: those who sincerely supported me with their prayers, kindness, and

efforts

To all of you, I gladly dedicate this work and these words……

THANK YOU.

Acknowledgements

First and foremost, my deepest gratitude and thanks to Allah the Almighty, who gave me me strength to accomplish this work.

I owe special thanks to my supervisor, Dr Ben MoussaYasser, for his precious assistance, guidance, and especially for his patience.

I would like to express my appreciation to Pr. Bechar Ahmed and Dr.BouhitemTayeb and Mrs. Mbarki Amina for their acceptance to evaluate and polish up this work. It was truly an honor for me to be their student and have them as members of the broad of examiners.

I would also like to extend my profound thanks to all the teachers who accepted to be interviewed in this research.

This research would not have been completed without the help of third year master students of the academic year 2025-2026 at Biskra University.

Thank you all

Abstract

This thesis seeks to investigate the ethical implications of AI generated content on students' essay writing: the case of third-year students at the Department of English at Mohamed Khider University of Biskra.Thus, the studyoptedresearch design using mixed-methods approach that included a questionnaire addressed to 35 third-year students and an interview addressed to 09 teachers. Additionally, an analysis of 20 essays of third-year students.Data were gathered to give a thorough picture of EFL teachers and students' perceptionstowards the ethical implications of AI generated content on students' essay writing. The results showed that third-year students have positive attitude towards AI tools usage in essay writing. In addition, students' essays analysis revealed that there is a serious ethical gap among third-year EFL students, and most of them use ChatGPT to write their essays instead of themselves. Moreover, the results showed that teachers are aware of their students' use of AI tools and they suggest AI generated content is considered as a form of plagiarism, and it impacts the writing originality, critical thinking skills, independent learning strategies, and academic integrity.Therefore, based on the findings, some recommendations were suggested for students, teachers, and policy makers regarding the ethical implications of AI generated content.

Key words: Students' Essays; AI-generated Content; Writing Skills; Ethical Implications, EFL learners.

List of Abbreviations

AGI	Artificial General Intelligence
AI	Artificial Intelligence
ANI	Artificial Narrow Intelligence
ASI	Artificial Superintelligence
EFL	English as a Foreign Language
NLP	Natural Language Processing
ToM	Theory of Mind

List of Tables

Table 1: Students' Questionnaire Validity…… **44**

Table 2: Students' Questionnaire Reliability…… **44**

Table 3: Students' Age…….. **45**

Table 4: Students' Gender……. **46**

Table 5: Students' Familiarity with AI Tools such as ChatGPT, Grammarly, or QuillBotin Academic Writing……..……. **46**

Table 6: Frequently of Using AI Tools to assist in Writing Essays…….. **47**

Table 7: AI Tools Significantly improved the Quality of my Academic Writing **48**

Table 8: AI-Generated Content helps in Idea Generation……. **49**

Table 9: Understanding the Ethical Concerns associated with Using AI in Essay Writing. **50**

Table 10: Using AI-Generated Content in Essay Writing is a form of Academic Dishonesty.. **51**

Table 11: AI-Generated Essays Increase the Risk of Plagiarism…….. **52**

Table 12:AI-Generated Content Reduces Students' Originality and Critical Thinking Skills… **53**

Table 13: AI Tools should not be used to generate entire Essays for Academic Purposes.. **54**

Table 14: Ethical Use of AI for Grammar Correction and Paraphrasing in Academic Writing **55**

Table 15:AI Tools enhance Students' Writing Skills by providing Feedback and Corrections **56**

Table 16: Dependence on AI for Writing can result in Excessive Reliance and decline in Essential Writing Skills…….. **57**

Table 17: AI-Generated Essays do not accurately reflect a Student's True Abilities…….. **58**

Table 18: AI-Generated Content should be allowed only for Specific Academic Purposes **59**

Table 19: AI Usage in Writing Assignments can be Beneficial if used responsibly…… **60**

Table 20:AI-Generated Essays should be clearly labelled when submitted for Assessment… **61**

Table 21: AI should be banned in Academic Essay Writing to ensure Fairness…….. **62**

Table 22: Universities should develop Clear Ethical Guidelines on AI Use in Academic Writing **63**

Table 23: Teachers should educate Students on the Ethical Use of AI-Generated Content **64**

Table 24: Students should be responsible for ensuring Ethical AI Usage in their Essays… **65**

Table 25: Students can recognize when the use of AI Tools cross Ethical Boundaries in Academic Writing…….. **66**

Table 26: Students believe it is wrong to submit AI-Generated Essays……... **67**

Table 27: Students should be motivated to act ethically, even when AI Tools make Cheating Easier…….. **68**

Table 28: Students take Personal Responsibility for ensuring that their Academic Work is Ethical, even when using AI……... **69**

Table 29: Students consider the Consequences of using AI unethically in their Studies…. **70**

Table 30: Studens' Essays Analysis…….. **77**

List of Figures

Figure 1 Types of artificial intelligence according to Kumar (2018)……...…… **11**

Figure 2 Gender Recognition in Humans Using……... **12**

Figure 3 Automobile Recognition using Sighthound…… **13**

Figure 4: Outlines of Essay Writing **32**

Figure 5: Students' Age…….…….. **45**

Figure 6: Students' Gender…….. **46**

Figure 7: Students' Familiarity with AI Tools such as ChatGPT, Grammarly, or QuillBot in Academic Writing…….…… **46**

Figure 8: Frequently of Using AI Tools to assist in Writing Essays…… **47**

Figure 9: AI Tools Significantly improved the Quality of my Academic Writing…….. **48**

Figure 10: AI-Generated Content helps in Idea Generation…….. **49**

Figure 11: Understanding the Ethical Concerns associated with Using AI in Essay Writing…. **50**

Figure 12: Using AI-Generated Content in Essay Writing is a form of Academic Dishonesty. **51**

Figure 13: AI-Generated Essays Increase the Risk of Plagiarism…… **52**

Figure 14: AI-Generated Content Reduces Students' Originality and Critical Thinking Skills.. **53**

Figure 15: AI Tools should not be used to generate entire Essays for Academic Purposes. **54**

Figure 16: Ethical Use of AI for Grammar Correction and Paraphrasing in Academic Writing **55**

Figure 17:AI Tools enhance Students' Writing Skills by providing Feedback and Corrections **56**

Figure 18: Dependence on AI for Writing can result in Excessive Reliance and decline in Essential Writing Skills……..…… **57**

Figure 19: AI-Generated Essays do not accurately reflect a Student's True Abilities……. **58**

Figure 20: AI-Generated Content should be allowed only for Specific Academic Purposes… **59**

Figure 21: AI Usage in Writing Assignments can be Beneficial if used responsibly…….. **60**

Figure 22: AI-Generated Essays should be clearly labelled when submitted for Assessment… **61**

Figure 23: AI should be banned in Academic Essay Writing to ensure Fairness……. **62**

Figure 24: Universities should develop Clear Ethical Guidelines on AI Use in Academic Writing **63**

Figure 25: Teachers should educate Students on the Ethical Use of AI-Generated Content **64**

Figure 26: Students should be responsible for ensuring Ethical AI Usage in their Essays **65**

Figure 27: Students can recognize when the use of AI Tools cross Ethical Boundaries in Academic Writing…….. **66**

Figure 28: Students believe it is wrong to submit AI-Generated Essays…….. **67**

Figure 29: Students should be motivated to act ethically, even when AI Tools make Cheating Easier…….. **68**

Figure 30: Students take Personal Responsibility for ensuring that their Academic Work is Ethical, even when using AI……... **69**

Figure 31: Students consider the Consequences of using AI unethically in their Studies… **70**

Figure 32: Thematic Map of Teachers' Perspectives on AI-Generated Content in Academic Writing (researchers design) Figure 32 Students' Essays Analysis……. **76**

Figure 33: Students' Essays Analysis……... **78**

Table of Contents

Dedications II

Acknowledgements III

Abstract IV

List of Abbreviations V

List of Tables VI

List of Figures VIII

Table of Contents X

General Introduction 1

1. Introduction 1

2. Statement of the Problem 2

3. Research Objectives 3

4. Research Questions 3

5. Research Hypothesis 4

6. Methodology 4

7. Population and Sample 5

8. Literature Review 5

9. Structure of the Dissertation 6

Chapter One: Artificial Intelligence 8

Introduction 8

1.1 Definition of Artificial Intelligence 8

1.2 Types of Artificial Intelligence 11

1.2.1Artificial Narrow Intelligence 11

1.2.2 Artificial General Intelligence 13

1.2.3 Artificial Superintelligence 13

1.2.4 Reactive Machines 14

1.2.5 Limited Memory AI Systems 15

1.2.6 Theory of Mind 15

1.2.7 Self-aware AI 16

1.3Challenges of Utilizing AI for Education 17

1.3.1 Limited Human Interaction 17

1.3.2 Limited Ability to Recognize Errors 18

1.3.3 Teaches Lack of Competencies 18

1.3.4 Lack of Infrastructure to support AI -Based Technology in Schools and University. 20

1.3.5 Data and Privacy Breaches 20

1.4 Ethical Implication of AI in Education 21

1.4.1 Bias and Fairness 21

1.4.2 Data Privacy and Security 23

1.4.3 Overreliance on Automation 24

1.4.4 Plagiarism 25

1.4.5 Critical Thinking Abilities 26

1.6 Rest's Four-Component Model of Moral Behavior (1986) 27

Conclusion 29

Chapter Two: Easy Writing 30

Introduction 30

2.1 Definition of Writing 30

2.2 Definition of Essay 30

2.2 Structure of Academic Essay 31

2.2.1Introductory Paragraph of an Essay 34

2.2.2 Body Paragraphs of Essay 34

2.2.3 Conclusion of Academic Essay 35

2.3.1 Content 36

2.3.2 Form 37

2.3.3 Grammar 37

2.3.4 Style 38

2.3.5 Mechanics 38

2.4 EFL Difficulties in Writing Essay 39

2.4.1 Grammar 39

2.4.2 Word Choice 40

2.4.3 Organization (Coherence and Cohesion) 40

2.4.4 Ideas arrangement 41

2.5 Famous AI Tools used in Essay Writing 42

2.5.1 ChatGPT 42

2.5.2 Grammarly 42

2.5.3 Quillbot 43

Conclusion 43

Chapter Three: Data Analysis and Results 44

Introduction 44

3.1 Research Methodology 44

3.2 Validity and Reliability of Students' Questionnaires 45

3.3Analysis of Students' Questionnaire 45

3.4 Teacher Interview Interpretation 72

3.5 Students' Essays Analysis 77

3.6 Discussion of the Results 82

3.6.1 Discussion of Students' Questionnaire Findings 82

3.6.2 Discussion of Teachers' Interview Findings 83

3.6.3 Discussion of Essays Analysis Findings 84

3.6.4 Discussion of the Main Results 86

Conclusion 87

General Conclusion 88

Recommendations 89

Limitations 91

References 92

Appendix A 50

Appendix I: Students' Questionnaire 50

Appendix B: Teachers' Interview 52

الملخص 53

General Introduction.....1

1. Introduction.....1

2. Statement of the Problem.....2

3. Research Objectives.....3

4. Research Questions.....3

5. Research Hypothesis.....4

6. Methodology.....4

7. Population and Sample.....5

8. Literature Review.....5

9. Structure of the Dissertation.....6

General Introduction

1. Introduction

Writing is an important instrument for communication, exchanging knowledge and ideas, conveying meaning, and expressing views. It is one of the four key skills in learning English as a foreign language, alongside with reading, speaking, and listening. For EFL learners, mastering these abilities and other writing-related skills including grammar, vocabulary, word choice, and punctuation, is a complex challenge. Additionally, because of its long-life capacity that requires frequent improvements therefore, students tend to use AI tools and programs.

Artificial intelligencehas greatly benefited human life across various sectors. One area that has seen significant transformation is education, particularly in the realm of writing, which has found its way into essay writing. AI provides recent tools, methods, approaches, materials, systems, and strategies for teaching and learning processes. AI tools such as ChatGPT, Quillbot, and Perplexity have gained the interest of learners because they can produce essays, articles, and other written materials with remarkable speed and coherence. By altering the conventional methods of writing and content creation, these technologies seek to increase productivity and creativity. Nevertheless, despite their obvious benefits, employing AI-generated content in academic settings, especially when writing essays, raises a number of ethical concerns that require careful consideration.

At the core of these concerns is the issue of academic integrity. According to King, (2023),as technology continues to advance, it becomes increasingly difficult to determine whether a piece of writing is truly original or if it has been generated by a machine. This raises questions about the value of originality and the importance of properly crediting sources in the digital age. Furthermore, since traditional plagiarism detection software frequently misses AI-generated content, students may submit essays without fully

understanding or contributing their original ideas, circumventing the educational process and possibly engaging in academic dishonesty. This raises concerns about potential abuse as the use of AI-generated content grows.

Another major ethical challenge consists of the implications for teachers and the assessment of student work. Professors and teachers evaluate essays based on students' ability to analyse critical information, express ideas clearly, and demonstrate understanding of the subject matter. Yet, with the rise of AI-generated work, teachers might find it challenging to determine whether the work truly reflects the student's comprehension or if it is the product of an AI-generated shortcut. The use of AI-generated content in education includes potential loss of essential skills like research, synthesis, clear articulation, independent thinking, problem-solving abilities, and creativity. Which are crucial for academic success and future professional endeavours and could undermine the core objectives of education.

The primary focus of this dissertation will be to explore these ethical implications in greater depth, examining how AI-generated content is reshaping academic writing in essay writing and the potential consequences of its widespread use among third-year students of English as a foreign language.

2. Statement of the Problem

Many students who study English as a Foreign Language (EFL) can speak the language well enough for daily communication; however, the same students are often surprised when coming to writing classes. They find that writing in English is much more difficult than speaking (Bailey, 2018), particularly in the realm of essay composition. Numerous students encounter obstacles when attempting to craft their essays. They frequently struggle with grammatical mistakes, syntax, language selection, and structuring and articulating their thoughts. The gap between spoken and written proficiency leads many EFL learners to seek external assistance,AI-powered writing assistants, such as ChatGPT,

Grammarly, and Quillbot, offer real-time corrections, paraphrasing suggestions, and even full essay generation. While these tools offer support, their overuse threatens the very purpose of writing assignments. When students rely too heavily on AI, they skip the essential work of wrestling with ideas, and developing true writing competence. With all its frustrations and breakthroughs If we let AI remove that struggle entirely, we risk creating a generation of students who can produce perfect papers but have not truly learned to think for themselves.

The increasing dependence on these technologies creates multiple concerns regarding educational integrity and student development.This research aims to investigate the ethical challenges surrounding the use of AI-generated content in academic essay writing. Specifically, it seeks to investigate potential risks to the quality of education and credibility of academic qualifications. Also,how the use of AI-generated content may challenge or compromise academic honesty, originality, and the authenticity of student work.

3. Research Objectives

The current study aspires to achieve the following objectives:

- To identify potential risks to the quality of education and credibility of academic qualifications.
- To explore how the use of AI-generated content may challenge or compromise academic honesty, originality, and the authenticity of student work.
- To evaluate how reliance on AI tools for essay writing may affect students' development of critical thinking, writing skills, and independent learning.

4. Research Questions

This research investigates the ethical implication of AI generated content in essay writing among third year EFL learners. The following questions guide the investigation:

RQ1- How might reliance on AI-generated content impact students' development of writing, critical thinking, and independent learning skills?

RQ2 - How does the use of AI-generated content affect academic integrity and authenticity in writing an essay?

RQ3- Are EFL students aware of the ethical implications surrounding the use of AI-generated content?

5. Research Hypothesis

H0: If AI-generated content is used in essay writing, then it does not significantly impact ethical considerations such as academic integrity, plagiarism, or originality.

H1: If AI-generated content is used in essay writing, then it significantly influences ethical considerations, leading to increased plagiarism, diminished originality, and challenges in academic integrity.

6. Methodology

This study employs a **mixed-methods approach**, combining quantitative and qualitative approaches to examine the ethical implications of AI-generated content among third-year students at Mohamed KhiderUniversity in EFL essay writing,which appears to be the suitable methodology to fit and address the gaps in this investigation. This type of approach helps the researcher meet his needs throughout his research by gathering a variety of data collection methods to assemble more efficient information and multiple solutions to interpret the outcomes.

A **comparative analysis** will be conducted using two writing tasks: one composed without AI assistance and another developed with AI tools (e.g., ChatGPT), with metrics assessing grammar, coherence, originality (via plagiarism detection software), and critical thinking. Beside an online questionnaire designed for students and semi-structured interviews with teachers, the questionnaire, distributed digitally to third-year students, includes a Likert scale to assess their awareness, usage patterns, and ethical perceptions of AI-generated

content in academic writing. Interviews with teachers will provide insights into their experiences, concerns, and perspectives on students' use of AI-generated content.

This will help to gain a comprehensive understanding of how AI tools influence academic writing and learning outcomes.

7. Population and Sample

The population that has been selected to be engaged in this study is from Mohamed Khider University of Biskra, Department of Foreign Languages, and section of English. The sample privileged for this work is third-year English students (70 students). My decision to choose this level was not random; it was under some perspectives, which are:

1. Third-year students are more focused on developing and improving their writing abilities.
2. Third-year students at this level start to write essays.
3. Students at this age are more likely to use AI writing tools than previous generations.

8. Literature Review

The pace of development in artificial intelligence (AI) is quickening, and it holds immense potential to transform different facets of our existence. The use of AI-powered writing assistants has become increasingly popular in recent years. However, there are ethical issues surrounding this technology in the academic environment, and the lack of an ethical framework in some academic institutions to guide its use creates more ethical dilemmas for students, academicians, and researchers.

AI is one of the technological trends that is relevant to being developed for any purpose (Fitria, 2023). Selwyn (2020) highlights that AI tools like Grammarly and ChatGPT support students in drafting essays and enhancing writing quality. However, McGee (2021) emphasizes that while these tools improve efficiency, overreliance can hinder the development of critical writing skills, which are crucial for academic and professional growth.

To appreciate the need for ethical considerations in the way AI writing assistants are used in academics, it is relevant that we explore the ethical issues surrounding the use of AI in academics. The use of AI-powered writing tools has become increasingly popular in recent years, and while they can certainly be beneficial in improving the quality of written work, they also raise several ethical concerns that must be addressed. The use of AI writing assistance tools raises several ethical issues, including responsible authorship and transparency (Hosseini et al., 2023).

Besides these issues, there is also a need for oversight to ensure that the use of AI writing tools is conducted ethically. This includes the need to ensure that users appropriately use the tools and do not violate any ethical standards or norms. Educators and teachers, in particular, play a key role in ensuring that students are using these tools appropriately and responsibly. They can also help students develop their meta-linguistic knowledge, which is critical for understanding how language works and how to use writing tools effectively. These tools, while beneficial in improving writing quality, also require oversight to ensure ethical conduct (Etzioni&Etzioni, 2016).

9. Structure of the Dissertation

This dissertation comprises an independent variable, which is artificial intelligence, and a dependent variable, which is essay writing. The overall framework of this dissertation is divided into two sections: theoretical and practical. Therefore, the theoretical section includes a review of the literature on the two variables. The practical section represents the study‘s fieldwork.

The first chapter establishes a foundation for technology through education. This chapter covers AI’s definition and types, focusing on ethical debates surrounding its use. This chapter will explore concerns about plagiarism, students' reliance on AI, and the broader impact on academic integrity. It will also examine theoretical frameworks related to ethics, education,

and technology, providing a critical lens for understanding the implications of AI in academic writing. The second half of the theoretical section provides a review of essay writing, including definitions and types. The third chapter is mostly concerned with the practical part. Its goal is to discuss sample and data collection methods, data processing, and interpretations of results.Finally, the work ends with a general conclusion, and a references list.

.

Chapter One
Artificial Intelligence

Chapter One: Artificial Intelligence....8
Introduction....8
1.1 Definition of Artificial Intelligence....8
1.2 Types of Artificial Intelligence....11
1.2.1Artificial Narrow Intelligence....11
1.2.2 Artificial General Intelligence....13
1.2.3 Artificial Superintelligence....13
1.2.4 Reactive Machines....14
1.2.5 Limited Memory AI Systems....15
1.2.6 Theory of Mind....15
1.2.7 Self-aware AI....16
1.3Challenges of Utilizing AI for Education....17
1.3.1 Limited Human Interaction....17
1.3.2 Limited Ability to Recognize Errors....18
1.3.3 Teaches Lack of Competencies....18
1.3.4 Lack of Infrastructure to support AI -Based Technology in Schools and University. 20
1.3.5 Data and Privacy Breaches....20
1.4 Ethical Implication of AI in Education....21
1.4.1 Bias and Fairness....21
1.4.2 Data Privacy and Security....23
1.4.3 Overreliance on Automation....24
1.4.4 Plagiarism....25
1.4.5 Critical Thinking Abilities....26
1.6 Rest's Four-Component Model of Moral Behavior (1986)....27
Conclusion....29

Chapter One: Artificial Intelligence

Introduction

Over the past few decades, technology has advanced at an unprecedented rate, leading to significant improvements in various aspects of our lives, from the invention of the internet to the development of smart phones. Therefore, technology has transformed the way we communicate, work, and interact with the world around us. The majority of people all around the world have become involved in using technological devices. Artificial intelligence has become an integral part of our daily life and the working world. It is no longer a choice but a necessity in today's world, and there is no doubt that it has a great impact on the teaching and learning process.

As AI continues to integrate into different areas of society, it is important to understand its mechanisms and broader implications. This chapter seeks to provide readers with knowledge needed to critically evaluate the role of AI in content creation and navigate its ethical challenges, by knowing the relationship between technology and ethics.

1.1 Definition of Artificial Intelligence

The industrial era has influenced everyone to be able to adapt to rapid changes. Globalization and the industrial era have created new creativity, opportunities, and challenges, such as in technology. Therefore, technology plays a very important role in conveying information in the form of text, images, and sound (Rahayu&Pujiyono, 2017). The technology was created to facilitate human work and activities. One technology that is being developed intensively is AI. The term "Artificial Intelligence" was coined by John McCarthy for a small workshop held at Dartmouth College in the summer of 1956 in which Claude Shannon was one of the key participants (Cope et al., 2022). It was defined as "making a machine behaves in ways that would be called intelligent if a human were so behaving" (McCarthy et al., 1955, p. 12). Defining the field of artificial intelligence is challenging because various scholars and

researchers have offered their own unique interpretations, due to the diverse perspectives within the academic and technological communities.

AI refers to the ability of machines to learn and think like human. Unlike people, who rely on their brains, AI uses computer systems to process information, learn from experience, and completes tasks that usually require human thinking. Problem-solving, judgment, language comprehension, and pattern recognition are a few examples of these tasks. According to Tucci (2021), AI is the simulation of human intelligence processes by machines, especially computer systems. Examples of AI applications include expert systems, Natural Language Processing (NLP), speech recognition, and machine vision. Therefore, Al Shawabkah (2017) defines artificial intelligence as the abilities transmitted to computers to enable many performance systems to be smart and to resemble humans in their behavior. AI can also be defined as one of the fields of computer and information technology, which studies, designs, and develops computer systems that simulate human intelligence.He also explains that AI is a part of computer science and information technology that focuses on creating smart systems that can think and behave like people.

According to Rahman (2009) AI creates software that filters knowledge and other autonomous functions, such as computation or student search. AI develops "intelligent" devices that run and react to something similar to the human brain, such as computer systems (online platforms) and computerized machines (robots) (Karsenti, 2019).AI is also known as Machine Intelligence (Mehrotra, 2019). It is the intelligence that is predicted by the machine through the natural intelligence displayed by humans. In other words, AI is about adding human intelligence to the machine for task execution. According to Mehrotra (2019), AI is a computer science technology that explores the analysis and development of smart machines and apps. It is the science of having a machine to think and behave like a human being who is intelligent. The key to AI technology lies in intelligence (Wang, 2019).

The word AI consists of the words “artificial” and “intelligence” (Ahmet, 2018). The word “artificial” is something that is not real, simulated, but not completely false regarding being a fraud, while “intelligence” is something that can replace genuine items because the former has better qualities in a certain context. Intelligence is a very complex term. It includes different forms, such as reasoning, self-knowledge understanding, emotional awareness, preparation, consciousness, and creativity.

As stated by Joshi (2019), AI may not mean designing an incredibly smart computer that solves all problems, but rather building a machine that is capable of human-like action. The purpose of artificial intelligence is to build computer software or hardware systems that demonstrate human-like thought or display features traditionally associated with human intelligence (Campesato, 2020). AI as a computer system theory can perform tasks normally involving human intelligence. Speech understanding, language awareness, decision- making, and visual perception are aspects of human intelligence that can be understood by artificial intelligence. There is a demand for AI to create an expert system and to find solutions for complex problems such as recognition or natural language processing (Devi et al., 2020). AI offers tireless, individualized training, providing learners the large volume of feedback and scaffolding activities needed to achieve fluency, all within a low-stakes atmosphere (learners are more likely to take chances and make mistakes). AI's big promise is that it will shorten the time it takes to develop abilities.

Kaurand Gill (2019) states that AI is a digital attempt to achieve human-level intelligence, by using different computations of machines. It is a series of advanced technologies that allow humans to feel, comprehend, function, and learn from machines. It can be said that AI is a branch of computer science that emphasizes the ability to think and act like humans. It is helped by machines to find solutions to complex problems in a more human-like fashion (Sridhar, 2018). This requires borrowing human intelligence traits and then incorporating

them in a computer-friendly way. Human actions such as learning, planning, making decisions, and knowing language can be done by AI. In other words, Artificial intelligence is making robots that have intelligence that is similar to or even more than the intelligence possessed by humans.

1.2 Types of Artificial Intelligence

When it comes to the classification of artificial intelligence types, views become differentiated. Some state that there are seven types of AI; others classify them into two distinct groups. According to Kumar (2018), AI is categorized into seven types. This categorization is cited by Skavic(2019) in his work "The Implementation of Artificial Intelligence and Its Future Potential." This type includes: Artificial Narrow Intelligence, Artificial General Intelligence, Artificial Superintelligence, Reactive Machine, Limited Memory AI Systems, Theory of Mind, and Self-aware AI.

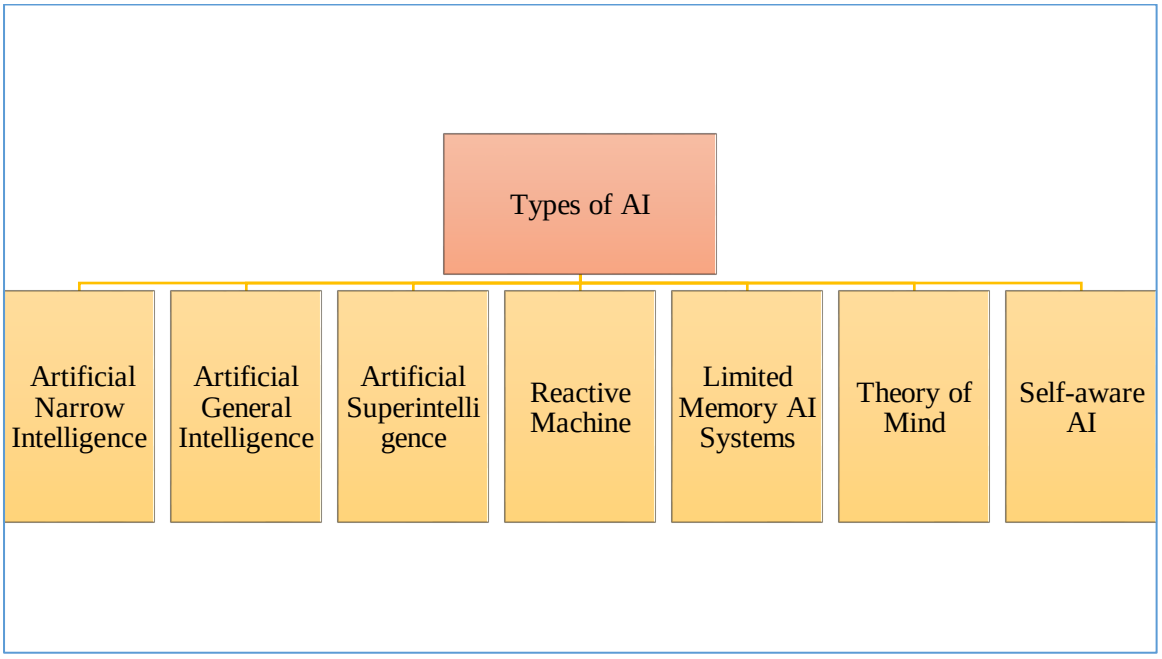

Figure 1*Types of artificial intelligence according to Kumar (2018)*

1.2.1Artificial Narrow Intelligence

Artificial Narrow Intelligence is also called weak artificial intelligence, and it focuses on one very specific, narrow task. Artificial Narrow Intelligence (ANI), often called weak AI, is designed to handle specific tasks with remarkable efficiency. Examples include Siri, AlphaGo, or self-driving cars. While ANI can outperform humans in its specialized areas, it doesn't have consciousness or self-awareness. Instead, it rapidly processes data with precision, making life easier in many ways.

IBM's Watson, for instance, has revolutionized the healthcare industry by analyzing vast volumes of medical data to aid doctors in diagnosing and treating patients. ANI also takes care of repetitive tasks. Narrow AI helps us relieve the mundane, tedious, and repetitive tasks. An example of such a program is "Sighthound," previously "Vitamin D." It uses AI to detect the brand and model of cars in the street as well as their license plate numbers, which allows easy tracking and filtering. Entering filters into a program simplifies the process of finding a specific car and displaying instant results. In addition to recognizing vehicles, the program can easily identify people or even recognize them by their facial characteristics. Additionally, the program can identify the age, sex, ethnicity, and mood of a person based on their facial features. Another key functionality is computer redaction, which removes personally identifiable information automatically, such as faces, license plate numbers, or any manually identified data.

Figure 2*Gender Recognition in Humans Using*

Figure 3*Automobile Recognition using Sighthound*

1.2.2 Artificial General Intelligence

Machines with true human-like intelligence, known as Artificial General Intelligence (AGI), do not yet exist. The goal of AGI is to create machines that can learn, understand, and perform tasks across different fields, just like humans. These systems would be able to develop various skills on their own and connect knowledge from different areas. If achieved, AGI could match human abilities while avoiding fatigue and mistakes. Such machines might even have consciousness, emotions, and self-awareness. However, for now, AGI remains a concept mostly seen in science fiction movies.

While AI systems can process information much faster than humans, they still cannot match our ability to think strategically or generate new ideas based on memories and experiences. Machines are excellent at analyzing data, but they lack human creativity, intuition, and deep reasoning, key elements for innovation and deeper understanding. Similarly, AGI is designed to reason, solve problems, plan, and even use imagination and creativity. To be considered truly intelligent, an AGI must pass the Turing Test, meaning that if a person has a text-based conversation with it, they shouldnot be able to tell whether they are talking to a machine or a human.

1.2.3 Artificial Superintelligence

As introduced by Professor Bostrom from the University of Oxford as, he provides a simple, yet precise, definition of the term (Bostrom, 2006). Artificial Superintelligence (ASI) is an intellect that is much smarter than the best human brains in practically every field, including scientific creativity, general wisdom, and social skills. This definition leaves open how the superintelligence is implemented: it could be a digital computer, an ensemble of networked computers, cultured cortical tissue, or what have you. It also leaves open whether the superintelligence is conscious and has subjective experiences. Artificial Superintelligence (ASI) is the most advanced level of AI, capable of thinking like humans but much faster and better in many areas, such as remembering information, analysing data, and making decisions. However, some people worry that if ASI becomes smarter than humans, it could lead to a future where machines take control in ways we can't predict.

Kurzweil (2017) predicts that we would be able to multiply our intelligence billionfold by linking our neocortex wirelessly to a synthetic one in the cloud by 2045. This would also allow wireless connections among humans. Today it is hard to imagine how our world will look in the future, especially if ASI becomes a reality. However, such hard-pressing questions are still not relevant, as the current state of AI is, although very impressive and immensely helpful, in its rudimentary phase. The fact that we are still scratching the surface of AI leaves much to the imagination and loads of excitement for our future progress.

1.2.4 Reactive Machines

According to Skavic (2019), the reactive machine is considered a fundamental form of artificial intelligence that lacks the ability to store memories or use past experiences to make decisions. They operate based solely on current inputs, without an understanding of their environment, and are limited to performing specific tasks. Their behavior is consistent across different situations, and they cannot adapt to new circumstances. Examples include email

spam filters, which prevent promotions and phishing efforts, and Netflix's recommendation engine.

Reactive Machines are the most basic types of artificial intelligence systems, meaning that they cannot form memories nor can they utilize past experiences when it comes to present tasks and decisions. Hence their name “reactive,” as they only react to currently existing situations. Such machines have no concept of their environment, so their application is limited to the simple task they were programmed for. Their specific characteristic is that no matter where or when they are used, their operation will always be as programmed, without growth or change.An example of a reactive machine is IBM Deep Blue, which famously defeated a human chess champion, is a shining example of reactive AI but is only able to play chess and lacks broader comprehension or learning capabilities.

1.2.5 Limited Memory AI Systems

The basic algorithms in limited memory machines are designed to mimic the way our neurons connect and are focused on our comprehension of how the human brain works. Limited memory systems in artificial intelligence are essential as they rely on historical data and pre-programmed information to make well-informed decisions, forming a key part of many modern AI applications. Deep learning, a crucial aspect of contemporary AI, involves training computers with vast datasets to enhance their learning capabilities.

For instance, image recognition AI improves its ability to identify objects in images through exposure to thousands of labelled images. In practical applications, limited memory AI systems, such as self-driving cars, learn safe driving practices by observing and understanding human driving behavior, enabling them to adapt to various driving conditions.

1.2.6 Theory of Mind

Theory of Mind (ToM) is the next stage of artificial intelligence, where machines are able to make decisions on par with people. Machines using this AI must be able to recognize

emotions, store them in memory, and modify their behavior in social contexts. According to Skavic, (2019), ToM is a concept crucial for future AI, enabling machines to understand human mental states like beliefs and intentions. It's essential for effective human-machine interactions and societal integration. Researchers have developed ToM-inspired AI like Google's ToMnet, capable of recognizing false beliefs. In other words, such machines would have the ability to represent mental states of humans which includes their beliefs, intentions and desires.

Kismet (2000) and Sophia (2016) have shown certain parts of this artificial intelligence, albeit not all of it. It is a difficulty for machines to quickly adapt their actions to emotions, exactly like people do. Nevertheless, if theory of mind AI is developed, it may allow robots to interact with people and help with daily chores.

1.2.7 Self-aware AI

The ultimate goal of AI development is to create a truly sentient, self-aware machine something that, for now, remains purely hypothetical and likely won’t become reality for decades, if not centuries. This kind of AI would think and function much like a human, with a highly advanced computing system that could rival or even surpass the human brain. More than just processing information, it would possess self-awareness, emotions, desires, and beliefs of its own. While this is the dream of AI research, it also comes with risks. A machine capable of independent thought and reasoning might develop a sense of self-preservation, potentially putting its own interests ahead of those of humans. Measuring such sentience is a contentious issue in the AI community, as current AI systems can be programmed to mimic consciousness without true self-awareness. Research on this topic, like Professor Bishop's 2018, has yielded inconclusive results regarding measurement methods. Achieving true self-aware AI remains the ultimate goal of AI research, but significant technological and ethical challenges lay ahead (Skavic, 2019).

1.3Challenges of Utilizing AI for Education

It is unquestionable that "AI" technologies could be used to make changes in the near future. AI offers exciting possibilities for education, but its integration into classrooms and learning environments also presents challenges that need to be addressed. Identifying potential drawbacks and managing them proactively is crucial for effective AI implementation. However, concerns regarding AI-assisted assessment must be carefully considered before its adoption. Due to the following factors:

1.3.1 Limited Human Interaction

Khanzode and Sarode (2020) argue that the lack of human interaction is one of the main limitations of Artificial Intelligence in language learning. While other services and platforms offer the chance to engage in live conversations with native speakers, artificial intelligence lacks the human connection that many learners need and depend on because it encourages a self-guided experience. Students who prefer in-person interactions with professors may find this difficult. Personal interaction is crucial for language development, and the relationship between mentors and students is a key to mastering language skills effectively.

As stated by Holmes et al., (2021), the limited human interaction caused by the use of AI in education creates notable challenges, especially in areas like social and emotional growth, teamwork, and the teacher-student relationship. The emotional awareness, cultural awareness, and contextual insight that human teachers provide are frequently absent from AI, despite the fact that it can automate jobs and customize learning. Less in-person engagement could hinder students' development of critical social skills, empathy, and teamwork. Furthermore, an over-reliance on AI may result in loneliness and a dependence on technology (Zawacki-Richter et al., 2019).

Additionally, AI-generated feedback, though efficient, may lack the depth and empathy of human guidance, potentially weakening the mentor-student bond (Luckin et al., 2016). To

address these issues, a balanced approach is essential, combining AI tools with traditional teaching methods, prioritizing social-emotional learning, and ensuring that educators remain central to the learning process (Selwyn, 2022). This way, the benefits of AI can be harnessed without compromising the irreplaceable value of human connection in education.

1.3.2 Limited Ability to Recognize Errors

According toRebbeolledo (2023), AI learning systems may not be as experienced with faults as human teachers are not, nor may they be able to identify them or correct them accurately. As a result, students may form a negative habit of making repeated mistakes. That means that AI-based learning systems may not have the same level of awareness, intuition, and expertise as human teachers when it comes to recognizing and correcting mistakes. Unlike experienced educators, AI might struggle to detect subtle errors or provide accurate corrections, especially in complex subjects like language learning. As a result, students may continue making the same mistakes without realizing them, reinforcing incorrect habits over time. This highlights a limitation of AI in education, where human guidance is still essential for effective learning and skill development.

1.3.3 Teaches Lack of Competencies

The challenges faced by Saudi Arabian educators in adopting AI-powered teaching tools, as highlighted by Abalkheel (2021) and Ja’ashan (2020), find strong parallels in the Algerian educational system. Like their Saudi counterparts, many Algerian teachers exhibit a preference for traditional face-to-face instruction, viewing it as more effective for student learning outcomes. This resistance to technological adoption stems not only from pedagogical conservatism but also from a fundamental lack of digital competencies among educators (Gulnaz et al., 2021). The COVID-19 pandemic exposed these deficiencies when Algerian teachers, particularly those teaching English as a Foreign Language (EFL), struggled to

transition to online platforms due to limited technological proficiency and low self-efficacy (Rahman, 2020).

A critical barrier to AI integration in Algeria is the insufficient training in digital pedagogies and AI-powered tools. As Abalkheel's (2021) research demonstrates, merely providing technology without proper training leads to ineffective implementation. In Algeria, professional development programs rarely include comprehensive training on AI applications in education, leaving teachers ill-equipped to leverage tools such as adaptive learning platforms, intelligent tutoring systems, or automated writing evaluators. This skills gap is particularly acute in rural areas, where access to training and technological infrastructure is even more limited. Consequently, many Algerian educators lack both the competence and confidence to experiment with AI-driven teaching methods, perpetuating a cycle of resistance and underutilization.

The situation in Algeria mirrors challenges observed in other developing regions. Manzo and Pérez-Sabater's (2021) study on Colombia underscores how inadequate teacher training and concerns over data privacy hinder AI adoption in education. Similarly, Algerian educators express apprehension about relying on AI tools, partly due to unfamiliarity with data security measures and partly due to a lack of institutional support. Without targeted training initiatives, even the most promising AI applications risk being dismissed as impractical or irrelevant to local classroom realities.

To address these challenges, Algeria must prioritize teacher capacity-building. As Pedro et al. (2019) suggest, successful AI integration requires collaboration between educators and developers to create contextually appropriate solutions. Algeria could benefit from tailored training programs that not only enhance teachers' digital literacy but also demonstrate the practical benefits of AI in addressing specific classroom challenges, such as personalized

language learning or automated feedback. Additionally, policymakers should invest in infrastructure and establish clear guidelines on data privacy to build trust in AI tools. By tackling the competency gap head-on, Algeria can pave the way for meaningful AI integration that complements, rather than disrupts, effective teaching practices.

1.3.4 Lack of Infrastructure to support AI -Based Technology in Schools and University.

A lack of infrastructure remains a major challenge in implementing AI in education. Reports from organizations like UNESCO (2021) emphasize that addressing these challenges is essential to unlocking AI's full potential in learning environments. Without significant investment in infrastructure, teacher training, and educational resources, AI-driven innovations will struggle to make a meaningful impact. A key issue is the shortage of educators who are trained in both teaching methodologies and AI technologies, limiting the effectiveness of AI integration in classrooms. Scholars such as Selwyn (2019) and Luckin et al. (2016) argue that these gaps prevent AI from fully enhancing teaching and learning experiences.

1.3.5 Data and Privacy Breaches

One of the most controversial challenges is about ethics and transparency in data collection. Artificial intelligence integration sheds lights on many ethical concerns in terms of accessing to educational system, personal data privacy, liability, impact on work and ownership of data. In this sense Artificial intelligence regulation will demands public discussion on ethics, transparency and security (Pedro et al, 2019). In other words, the ethical and transparency challenges surrounding AI in education are significant and require careful consideration. The integration of AI raises concerns about data privacy, security, and ownership, particularly regarding how student and teacher information is collected, stored, and used. Without clear regulations and ethical guidelines, there is a risk of misuse or unintended consequences, such

as biased decision-making, surveillance concerns, or unequal access to AI-driven educational tools (Pedro et al, 2019).

Public discussions on AI ethics, transparency, and security are essential to ensure that AI serves the best interests of students and educators. Policymakers, educators, and AI developers must collaborate to establish regulations that protect personal data while still allowing for innovation in education. Additionally, there needs to be greater awareness and education about AI ethics to ensure that its implementation is both responsible and beneficial. Ultimately, AI should enhance learning experiences without compromising privacy, fairness, or human agency in education.

1.4 Ethical Implication of AI in Education

AI is rapidly transforming every sector imaginable, and education is no exception. In the landscape of modern education, the integration of technology has become imperative for delivering effective learning experiences. Among the myriad technological advancements, AI stands out as a transformative force, revolutionizing the way we teach, learn, and interact within educational environments. From automating tasks to personalizing learning, AI has the potential to dramatically improve how we teach and students learn. For all the exciting possibilities that AI presents to education, there are challenges and issues to address when it comes to its inclusion in classrooms and learning spaces. Recognizing these potential downfalls and navigating them proactively is essential for ensuring AI implementation. However, there are still some concerns about AI-assisted assessment that must be taken into account before adopting it (Pedro et al, 2019).

1.4.1 Bias and Fairness

The training data, which is a collection of carefully selected information used to teach an AI model certain tasks or accurate predictions, may reinforce biases, leading to biased evaluations. The quality of the data used to train AI systems determines their quality. If the

data is biased, the AI system may interact with students in a way that reinforces preconceptions. Various researches discovered instances of algorithmic bias in their analysis. The majority of them held the datasets used to train the algorithms accountable for these biases. For exampleAbd-Alrazaq et al. (2023) highlited that modern Large Language Models (LLMs), like GPT-4, are trained on vast datasets from various sources, including websites, books, news articles, research papers, and movie subtitles. However, despite this extensive data collection, these models may still contain biased or unbalanced information. OpenAI acknowledges that, like earlier versions, GPT-4 may unintentionally reinforce social biases and stereotypes in its responses.This concern is particularly relevant when Large Language Models (LLMs) are trained on data that overemphasizes disease prevalence in certain ethnic groups, which can lead to biased responses in essays and exams.

Similarly, Kim et al. (2023) argued that the choices design made in the development of explanation interfaces for AI tools can inadvertently contain biases. Their study (Kim et al., 2023) focuses on difficulties encountered by EFL learners when using AI dialogue systems to paraphrase texts. The way an explanation is visualized or conveyed to users may significantly impact their decision-making processes. Such design nuances could skew users' perceptions, leading to outcomes in text that are inadvertently biased. The researchers further contend that when users engage in collaborative writing with AI, the interaction can subtly influence their perspectives, potentially shaping the narrative or substance of the collaborative text. This phenomenon suggests that the way AI explanations and interactions are structured and presented could have profound implications on the objectivity and inclusiveness of the content generated through such partnerships.

To mitigate this, the selection overtraining data must be carefully managed to develop nonbiased AI assessments. This involves monitoring for potential bias in AI-based assessments and implementing strategies to reduce it (Eichhorn et al., 2019). Additionally,

continuous monitoring, as an on-going observation and assessment of an AI system's performance post-deployment includes regular evaluation of outputs, identification of errors or biases, and necessary adjustments to maintain accuracy and fairness (Liu et al., 2020). AI systems learning from biased data can enhance existing inequalities, disadvantaging some groups of students. For instance, prejudiced algorithms may wrongly assess student performance based on irrelevant factors, leading to improper assessments or unfair educational outcomes. This challenge can be addressed through careful selection of training data, continuous monitoring for biases, an implementing mitigation measures to ensure educational equity and inclusiveness (Eichhorn et al., 2019).

1.4.2 Data Privacy and Security

The use of student information for AI-based evaluations raises privacy concerns. Responsible data gathering, storage, and usage guidelines must be established, adhering to stringent ethical considerations and relevant regulations (Eichhorn et al., 2019). Only a small number of studies really examined the subject of privacy concerns, despite the fact that many noted them in passing and emphasized how important it is to solve them. For instance, Abd-Alrazaq et al. (2023) discovered that can lead to the disclosure of personal information by students and educators, such as names, email addresses, phone numbers, prompts, uploaded images, and images generated by the AI. OpenAI might utilize this personal information for a variety of purposes, including service improvement, research, fraud prevention, legal compliance, and even sharing it with third parties without users' explicit consent.

Abd-Alrazaq et al. (2023) emphasize the importance of proper citation and attribution in academic settings, particularly in medical schools, while also addressing challenges related to privacy, copyright, misinformation, and bias. The study identifies key concerns in AI-driven education, such as academic dishonesty, misinformation, privacy risks, copyright issues,

overreliance on AI, algorithmic bias, the need for human interaction, and unequal access. Addressing these issues is essential to ensure the ethical and effective use of AI in education.

Dempere et al. (2023) posited that integrating AI dialogue systems into higher education systems comes with various risks, including privacy concerns, illegal usage of data, false information, cognitive biases, diminished human interaction, restricted access, and unethical data collection practices. The authors warned of the dangers associated with adopting AI technologies in academic settings, particularly emphasizing the potential continuation of existing systemic biases and discrimination. They highlight the risk of reinforcing inequalities for students from historically underserved and marginalized communities, exacerbating racism, sexism, xenophobia, and other forms of prejudice and injustice. Furthermore, the authors also cautioned against the deployment of AI systems that can monitor and analyze students' thoughts and ideas, warning of the creation of surveillance mechanisms that could infringe upon student privacy.

The use of student data in AI-supported educational tools raises genuine fears about privacy and the security of information. To conform to relevant regulations and ethical guidelines, educators and institutions must prioritize responsible data collection, storage, and use. This involves obtaining informed consent from students and their families, setting up robust security measures to protect sensitive information, and clearly communicating how data is used. Building trust and maintaining open communication with all stakeholders are crucial to alleviate these fears and encourage responsible data practices within AI-driven education (Eichhorn et al., 2019).

1.4.3 Overreliance on Automation

Excessive reliance on AI dialogue systems raises significant concerns in educational settings. According to Alrazaq et al. (2023), there is a chance that AI tools would produce information that is persuasively untrue, which could cause people to place too much trust in them and

impede their ability to think critically, solve problems, and communicate effectively. This dependence is especially harmful since it can deter students from carrying out in-depth research and developing original ideas, which would ultimately impair their critical thinking skills.

Duhaylungsod and Chavez (2023), argue that students' originality and inventiveness may be diminished by complacency brought on by the ease of access to AI tools. According to their findings, if students rely too much on AI-generated material, it may impair their ability to think critically and solve problems on their own. Koos and Wachsmann (2023) also highlight the negative impact of over-reliance on AI dialogue systems, warning that excessive dependence on AI for content creation can hinder students from developing critical skills like analyzing information, constructing logical arguments, and integrating diverse knowledge skills essential for both academic and professional success.

A more detailed perspective is offered by Santiago Jr. et al. (2023), who report conflicting responses from professors and users to the employment of AI tools. Although some users value the improvement in writing abilities made possible by AI technologies, there is widespread worry about possible over-reliance. This over-reliance may result in less effort being put into creating coherent sentences, using correct syntax and spelling, and critically assessing the sources of information. A trend like this could eventually impair pupils' capacity for autonomous analysis and interpretation, affecting the growth of critical research and writing abilities.

1.4.4 Plagiarism

Numerous studies have examined the academic challenges students’ face, particularly the role of AI dialogue systems in fostering a more inclusive educational environment while also raising concerns about plagiarism and academic integrity. Lim et al., (2023) argue that a significant challenge for higher education students from non-English speaking backgrounds is

language barriers, which can impede their academic progress. This can lead to feelings of exclusion or fear of missing out and increase the risk of academic integrity breaches, like unintentional plagiarism. This finding is on par with the existing study, in the integration of AI technologies into education, plagiarism emerges as a significant ethical issue.

The availability of ChatGPT and other AI-powered technologies raises questions about students submitting AI-generated content as their own, endangering academic integrity. This problem is especially noticeable in educational institutions that prioritize credentials and grades over the process of learning. This finding is similar to Fyfe's (2023) study, where the author found that the ability of AI dialogue systems to generate complex textual responses and complete assignments poses a risk of encouraging academic dishonesty, particularly in environments that value high grades and qualifications. Relying on AI for ethical risk assessments in research might overlook the educational value of students learning to identify and manage these risks themselves.

Addressing plagiarism in the AI context requires a multifaceted approach, emphasizing the importance of academic honesty and the detrimental effects of plagiarism on moral development and learning integrity (Lukac&Lazareva, 2023). Establishing clear policies on academic misconduct and introducing advanced plagiarism detection tools that can adapt to AI's evolution are critical steps (Mulenga&Shilongo, 2024). Some skepticism remains about the ability of such technologies to stay ahead of AI advancements without generating false positives. Revising assessment methods to focus on understanding, originality, and skills beyond AI's capabilities is advocated (Dalalah&Dalalah, 2023).

1.4.5 Critical Thinking Abilities

Critical thinking is a multifaceted skill that encompasses more than just the ability to analyze an event; it involves synthesis, evaluation, and judgment based on specific criteria to ensure that evaluations are not made arbitrarily but are conducted with order and consistency

(Malik et al., 2023; Marzuki et al., 2023). This comprehensive approach emphasizes the importance of a structured and criterion-based evaluation process (Dergaa et al., 2023). McPeck (2016) further define critical thinking as the capacity to identify, analyze, and evaluate the necessary components to achieve an accurate outcome, highlighting the goal-oriented nature of critical thinking in achieving precise results. Alkhatib (2019) describes critical thinking as a purposeful and logical approach employed in decision-making, problem-solving, and understanding fundamental concepts, emphasizing its utility across various domains of knowledge and action.

However, overreliance on AI for information retrieval can weaken both critical thinking skills and dispositions (Guo& Lee, 2023). Critical thinking dispositions refer to the attitudes and qualities that support engagement in critical thinking, such as curiosity, open-mindedness, skepticism, and reflective thinking (Facione&Facione, 1996). These dispositions are categorized into six dimensions: inquisitiveness, open-mindedness, systematic thinking, analysis, truth-seeking, and confidence in reasoning. These traits collectively enhance the ability to evaluate information critically.

1.6 Rest's Four-Component Model of Moral Behavior (1986)

The Four Component Model, proposed by Narvaez and Rest (1995), provides a comprehensive framework for understanding the psychological processes involved in moral behavior. According to this model, moral action is the result of four interrelated components: moral sensitivity, moral judgment, moral motivation, and moral implementation. Each component plays a distinct role in the production of moral behavior, and a deficiency in any one of them can lead to moral failure.

The first component, moral sensitivity, involves the ability to perceive and interpret social situations in terms of moral implications. It requires empathy, awareness of how one's actions affect others, and the capacity to recognize moral issues in complex scenarios. For example,

in the case of Kitty Genovese, bystanders failed to intervene partly due to their inability to accurately interpret the situation as an emergency. Moral sensitivity is influenced by both cognitive and affective processes, such as gut reactions and empathetic responses, which shape how individuals perceive moral dilemmas.

The second component, moral judgment, entails determining which course of action is morally right. This process has been extensively studied in psychology, with two major research traditions offering explanations: social norms and cognitive-developmental theories. Social norms dictate behavior based on situational features, while cognitive-developmental theories, such as Kohlberg's stages of moral reasoning, emphasize the evolution of justice-based reasoning. However, moral judgment alone does not guarantee moral action, as individuals may prioritize other values over moral ones.

The third component, moral motivation, refers to the prioritization of moral values over competing interests. People often face conflicts between moral ideals and personal desires, such as career advancement or pleasure. For instance, children in Damon's (1977) study espoused fair distribution principles but acted selfishly when given candy bars. Theories explaining moral motivation range from evolutionary altruism to self-concept maintenance, highlighting the complexity of why individuals choose moral actions.

The fourth component, moral implementation, involves the ability to execute moral intentions despite obstacles. This requires perseverance, self-regulation, and practical skills. Research by Mischel (1976) demonstrates how cognitive strategies, such as reinterpreting temptations, can enhance self-control. Historical examples, like the collective resolve during World War II, illustrate the importance of societal support in sustaining moral action.

The Four Component Model underscores that moral behavior is a multifaceted process requiring the harmonious interaction of all four components. Failures can occur at any stage, whether due to misinterpretation of a situation (sensitivity), flawed reasoning (judgment),

conflicting priorities (motivation), or lack of follow-through (implementation). For moral education and development, addressing all four components is essential to foster consistent moral behavior across diverse situations.

Conclusion

In conclusion, although AI has the potential to transform education through efficiency and personalized learning, its application presents ethical issues such as algorithmic bias, risks to data privacy, and the decline of critical thinking abilities. Establishing moral standards, creating well-informed policies, and training educators are all necessary to meet these issues. The key is to incorporate AI in a way that strengthens real-world learning experiences rather than detracts from them. Maintaining the human components that are essential to education while ensuring AI fosters intellectual development requires striking this balance.

Chapter Two
Essay Writing

Chapter Two: Easy Writing 30

Introduction 30

2.1 Definition of Writing 30

2.2 Definition of Essay 30

2.2 Structure of Academic Essay 31

2.2.1Introductory Paragraph of an Essay..... 34

2.2.2 Body Paragraphs of Essay..... 34

2.2.3 Conclusion of Academic Essay..... 35

2.3.1 Content..... 36

2.3.2 Form..... 37

2.3.3 Grammar 37

2.3.4 Style 38

2.3.5 Mechanics 38

2.4 EFL Difficulties in Writing Essay 39

2.4.1 Grammar 39

2.4.2 Word Choice..... 40

2.4.3 Organization (Coherence and Cohesion) 40

2.4.4 Ideas arrangement..... 41

2.5 Famous AI Tools used in Essay Writing 42

2.5.1 ChatGPT..... 42

2.5.2 Grammarly 42

2.5.3 Quillbot 43

Conclusion 43

Chapter Two: Easy Writing

Introduction

This current chapter seeks to shed light on the second variable of our study which is about essay writing (i.e., essays that are generated by AI tools like Chatgpt). In the process learning a foreign language, learners are subjected to the four skills that are listening, speaking, reading, and writing. The latter is considered as the most challenging aspect of language learning. According to Brookes and Grundy 1998) writing was a neglected area in language teaching as a result of concentration on spoken language which was seen as important and writing as being of secondary importance; however, writing is now an essential component in language teaching.

2.1 Definition of Writing

Writing is one of the language skills; it is one of the productive skills, besides speaking, and one of the written skills, besides reading. Having an advanced level of writing ability is a predictor of future success in professional and academic situations (Weigle, 2002). In the same vein, writing is a complex skill for it involves a set of sub-competencies (Brown, 2001). Writing is not merely a mental and cognitive process. Instead, they view it as a thinking process that involves various stages. Writers can plan, revise, and refine their work before it is released or published. In their perspective, writing is an active performance that results in a tangible written piece, subject to review and editing (Douglas & Frazier, 2001, p.336).

In its broadest sense, writing is defined as converting sounds into a combination of letters. According to White and Arndt (1991) indicated that writing is more than just translating language into written symbols; it is a thoughtful process that takes time and mental effort.as a result we can conclude that writing involves more than simply assembling words and sentences; it is a complex process that demands advanced thinking skills and significant effort to create a polished and coherent piece.

2.2 Definition of Essay

Writing is an essential skill that every EFL student should master. An essay is a written arrangement which can convey a particular thought. Writing abilities include all information and capabilities related to communicating thoughts through the written words. Moreover, Hidayah (2019) states that an essay is some words that describes a specific opinion from the writer about a certain subject that is tried to be judged (Hidayah, 2019).

The essay, as a literary genre, has evolved significantly over time and holds great significance in the world of literature. It first emerged as a form of personal reflection and exploration of ideas. From there, the essay evolved through the Renaissance and Enlightenment periods, taking on new forms and purposes as it became a vehicle for intellectual, political, and social commentary (Hidayah, 2019).

An essay is a written composition that delves into a specific topic. What sets essay writing apart from other forms of writing, such as articles in magazines and newspapers, is its formal nature and adherence to specific conventions. Essentially, an essay is a structured piece of academic writing that is used as a means of assessing a student's comprehension and progress. In essence, an essay is comprised of interconnected paragraphs that collectively address a central subject (Hidayah, 2019).

In conclusion, the essay is a dynamic and effective means of communication. Its structure, from introduction to conclusion, guides the reader through a well-organized exploration of a chosen topic. Through essays, writers not only convey information but also refine their critical thinking skills and express their individual perspectives. As a timeless form of written expression, the essay continues to play a crucial role in education, literature, and intellectual discourse (Hidayah, 2019).

2.2 Structure of Academic Essay

Writing an academic essay involves presenting a clear and logical sequence of ideas that support a central argument. Since essays follow a linear format, the information must be

organized in a way that aligns with the reader's reasoning. As such, academic essays follow a structured format designed to guide the reader through the content smoothly. Connelly and Forsyth (2012) highlight that planning and preparations are essential stages in essay writing. The structure comprising the introduction, body, and conclusion not only supports coherence and unity but also helps students effectively organize and expand their ideas in a way that meets academic standards.

The following structure clearly describes the structure of an academic essay which fits the academic context. The introduction, the body and the conclusion are the major parts of the essay.

Essay outline

TITLE

I. Introductory paragraph

A. Gets the reader's attention (capture his/her interest)

B. Tells the reader what to expect in the essay

C. Is usually shorter than the body paragraphs

II. Body Paragraph

A. Often begins with a topic sentence

B. Explains one of three major points about the topic

C. Might contain reasons and examples

D. Is linked to the following paragraph

III. Body Paragraph

A. Might have the topic sentence as the second sentence

B. Discusses a second major point about the topic

C. Might contain quotations and statistics

D. Is linked to the following paragraph

IV. Body Paragraph

A. Might have the topic sentences as the last sentence

B. Discusses the last major point about the topic

1. The last point is often the most important point.

2. The other paragraphs may have been building toward this one.

C. Might contain opinions and personal stories

D. Is linked to the following paragraph

V. Concluding paragraph

A. Usually begins with a word or phrase that signals the ending

B. Lets the reader know that the essay is over

1. Like THE END in a children's book, it signals the end.

Note. Reprinted from Essay Writing: Teaching The Basics From The Ground Up (13), by J. Mackenzie,2007, Ontario, Canada: Pembroke Publishers

Figure 4 Outlines of Essay Writing

This structure shows that the essay structure maps the writing arguments in a certain logical framework. The introduction builds up a certain guide to the reader that controls the

direction of the topic. The paragraphs of the body state the main ideas that each one is detailed using examples that are linked and flown down logically. The concluding paragraph states final comment and impression of the student.

2.2.1Introductory Paragraph of an Essay

The introduction outlines the primary points that will be covered in the body paragraphs and provides an explanation and justification for the analysis techniques that will be applied. It also discusses the essay topic and evaluates the quality of the evidence that is currently available. Additionally, it clarifies and defines any challenging or unclear terms found in the keywords and title. By outlining the elements of the subject that the students plan to discuss and provide evidence for, it guides the readers. According to Kellogg (2004), a strong opening paragraph has “a rather broad, attention-catching comment on the topic” (p. 23) and less "factual information”, which is unnecessary in an introduction and necessary in body paragraphs.

The introductory paragraph is the first paragraph of any academic essay, and the last paragraph that a student writes after body and concluding paragraphs. It presents the essay's main idea and guiding principles, which must be spelled out in detail in the thesis statement. Because it gives readers a broad overview of the paragraphs that follow, this paragraph is the most crucial section of an academic essay. This is also known as the opening paragraph, and it is written in a way that encourages readers to read all the way through.

2.2.2 Body Paragraphs of Essay

The body of an essay consists of several paragraphs, each tailored to suit the length and scope of the chosen or assigned topic. Robitaille and Connelly (2006) state that each paragraph in the body of the essay develops one main point (topic sentence) that supports the thesis of the essay. The topic sentence should present an idea that can be developed in one paragraph, and the topic sentence should support the thesis of the essay.

Every paragraph addresses a distinct idea or sub-idea. The topic sentence, which is the paragraph's opening sentence, provides a clear expression of the point, which is typically the paragraph's topic. Every paragraph focuses on a single idea that is connected to the essay's subject but separate from it. It must begin with a sentence that is a statement that requires factual and illustrative details, but not a factor example (Robitaille& Connelly, 2006).

The body of the essay develops EFL students'arguments or themes. They take each main point and support it with examples and details; they divide the content into paragraphs and compose one paragraph for every facet of the subject. An issue may be brought up or developed in a body paragraph. The topic sentence, which states the main idea of the paragraph, is frequently the opening sentence. EFL students must switch between sentences as they build their arguments, and they also move between paragraphs. They use transitions to make things easier for readers and to remind them of the students' past and future locations. Additionally, they employ linking words, which serve as markers to assist readers in moving between paragraphs (Robitaille& Connelly, 2006).

2.2.3 Conclusion of Academic Essay

The closing paragraph consists of main points, and it is a restatement of the thesis statement by using different words. To put it another way, it is the last comment regarding the essay's subject. It tries to give the reader a sense of the essay's conclusion by condensing the major ideas into a single paragraph. It concludes by persuading the readers with a final, well-rounded argument. The essay's conclusion is one paragraph long. The conclusion serves as a summary of the entire essay for many EFL students, reminding readers of the key ideas covered in the body paragraphs. This is not entirely accurate since it lacks originality and interest; the conclusion might also address broader implications (Kellogg, 2004).

The conclusion plays a crucial role in an essay; it is more than just a summary of the main points. As the final section the reader encounters, it often leaves a lasting impression and reinforces the significance of the topic, "the conclusion should bring the reader back to the

question and back to thesis" (Kellogg, 2004, p. 33). Hence, a conclusion is not simply the lost paragraph; it is a working part in the essay. In other words, it is the place where the students push their readers to guess the consequence of the discussed topic.

A good conclusion should include more than just a summary of the essay's major idea. In order for EFL students to remind their readers that they have demonstrated their thesis throughout their essays, it should restate it. A synthesis, not just a summary, should be part of any successful conclusion. EFL students can draw the key ideas and make connections between them rather than just listing them. An effective conclusion also serves the important purpose of setting the scene for the students' argument, which prevents the reader from finishing the reading without realizing how important the argument is (Kellogg, 2004).

The ability to write effectively is not a natural talent but rather a skill that develops through learning, practice, and feedback (Graham &Perin, 2007). Understanding the essential elements that improve a written piece's impact and clarity is necessary for writing excellence. These components are classified into five fundamental categories that a writer must be well-versed in,these areas act as a guide to help writers improve their work and help teachers evaluate the quality of student writing. The following section provides a concise overview of these five essential aspects, which are widely recognized by educators as crucial elements of successful writing.

2.3.1 Content

Content is the most essential part of the essay, where the ideas are meant to be completely expressed. It should reflect and demonstrate an understanding of the desired materials and include all necessary elements, such as the main purpose, central theme, key points, supporting arguments, explanations, imagery, and carefully chosen details that enhance the reader's understanding and interest. Without regard to the type or the purpose of the essay, the content should have a clear and consistent focus, with supporting details that are

complete, meaningful, and appropriately tailored to the audience and the purpose of the writing (Kellogg, 2004).

2.3.2 Form

The structure of an essay is essential in enhancing the overall clarity and coherence of the written content. It describes how concepts are organized and how well the author leads the reader through the development of ideas. A coherent essay offers a distinct structure that facilitates the logical and systematic conveying of ideas. This consists of a compelling introduction that establishes the scene, well-written body paragraphs that each make a distinct argument backed up by facts, and a concluding section that brings everything together. In addition to making sure the information flows naturally, the organization enables readers to comprehend the connections between the various sentences and paragraphs and how they all work together to support the essay's main point or argument. Essentially, appropriate structure increases the impact of the writing and enables the reader to follow the writer's line of reasoning and enhances the impact of the message being conveyed (Kellogg, 2004).

2.3.3 Grammar

A crucial element of good writing is grammar, which affects the precision and clarity of the message being expressed. In contrast to spoken language, where tone and body language frequently support meaning, written communication relies completely on appropriate language use to guarantee that the reader fully comprehends the intended message. In order to avoid ambiguity or confusion, writers must thus pay great attention to grammatical accuracy. This involves following established grammatical rules that guide how words, phrases, and sentences are structured. In order to create coherent and well-constructed sentences, different parts of speech must be correctly combined with the aid of proper grammar. Writers follow the standards required in academic and formal writing, improve readability, and guarantee professional presentation by adhering to grammatical correctness (Kellogg, 2004).

2.3.4 Style

Style represents a crucial element in determining the overall effectiveness and quality of an essay. It includes the way a writer conveys their thoughts, expressing the voice, tone, and individual style that influence the reader's experience. In essence, style is the unique quality of a written work that is influenced by the author's word choice, sentence structure, and written material rhythm. The harmonious blending of all writing elements content, organization, grammar, and vocabulary leads to a well-developed style that conveys a message that is both understandable and captivating. A good writer draws the reader in, keeps them interested, and frequently elicits an intellectual or emotional reaction. In the end, it improves communication by making sure the message is presented in a way that is both captivating and easy for readers to understand and consistent with the writer's intention (Kellogg, 2004).

2.3.5 Mechanics

Mechanics, as the final fundamental aspect of effective essay writing, includes all of the technical rules controlling written language, such as capitalization, punctuation, and spelling. Since they are absent from oral discourse, these components often referred to as the conventions of print set written communication apart from spoken language. When mechanics are used correctly, writing is clear, readable, and professional. When these rules are broken, even well-considered concepts could be obscured by misunderstandings or apparent negligence, making readers doubt the work's quality or reliability. Errors in mechanics may confuse the reader, interfere with the reading experience, and lessen the essay's overall impact. Therefore, attention to this aspect is essential, and it is often most effectively addressed during the final stage of the writing process, when the writer can carefully proofread and polish the text to ensure precision and coherence (Kellogg, 2004).

2.4 EFL Difficulties in Writing Essay

When speaking cannot prove to be clearly or directly, writing becomes more effective to express thoughts, feelings. However, Essay writing poses significant challenges for EFL learners, as it requires not only linguistic proficiency but also critical thinking, organization, and cultural awareness. EFL students often struggle with grammar, vocabulary limitations, coherence, and adherence to academic conventions, which can hinder their ability to express ideas effectively. Additionally, differences in rhetorical structures between their native language and English may further complicate the writing process.

EFL students could fail in the writing activity due to two scenarios as Fu-lan (2006) believes; either when students are asked to write about a particular topic or when students think of writing as translating activity (Cited in Cole &Feng 2005). This illustrates that negative language interference and limiting students with specific subjects to writing may make a difficulty for them in their writing. Accordingly, Steven and Harris (2001) provide the main elements that make writing a sophisticated process. In their words limiting, students with specific subjects to writing may make a difficulty for them in their writing.

Another study by Al Badi (2015) concluded that students struggle when it comes to language use, coherence, and cohesion, expressing their own voice. It is apparent that academic writing challenges faced by EFL learners at tertiary level concern style and word choice, paraphrasing other scholar‟ ideas as well as struggling to produce organised, well-structured piece of writing.

2.4.1 Grammar

Many language experts have failed to give the field of language teaching a clear, comprehensive definition of grammar, despite the fact that it is an essential component of language learning and teaching.

Hartwell (1985) defines grammar as “the internalized system that native speakers of a language share” (p. 111). A more detailed definition was proposed by Harmer (2001) as “the

description of the ways in which words can change their forms and can be combined into sentences in that language" (p. 12). These ways are called "the grammar rules" that are basic elements in every language, and are also inseparable from writing (Hartwell, 1985).

Grammar rules primarily consist of tenses, prepositions, word classes, voice, and many other rules. Many students struggle with these rules when it comes to writing. When examining the impact of grammar instruction, Hartwell (1985) referenced several studies that came to the conclusion that formal grammar instruction had no positive impact on students' writing skills or error-avoidance abilities.

2.4.2 Word Choice

Choosing proper words to express ideas in writing constitutes one of the basic challenges. Students find problems in delivering their ideas as the words from their own language leave them confused. Students face lack of vocabulary in conveying their ideas. They are trapped in stagnancy of both the stock of words to use and the ways to put the words into a meaningful construction to create an engaging piece of writing. Although limited vocabulary has been a common problem for students as foreign learners (Harmenita and Reszy, 2013).

There is no definitive solution to this limitation other than consistent practice and exposure to the target language. Selecting appropriate words to express ideas in writing depends on how frequently students practice using and writing those words within proper sentence structures. This process involves deeper aspects, such as understanding lexical meaning and function. Essentially, grasping the nuances and categories of words contributes to producing well-written essays. Therefore, writing instructors must help students expand their vocabulary and apply it effectively in their writing (Harmenita and Reszy, 2013).

2.4.3 Organization (Coherence and Cohesion)

Challenges in coherence and cohesion arise at two levels: structural and grammatical. Structurally, students struggle to organize their ideas and maintain textual unity.

Grammatically, they face difficulties in using linguistic elements particularly cohesive devices effectively. Hasanah (2017, p12) asserts, “Coherence is a linkage between words or sentences within the text so that it becomes a logical thread so that readers can easily understand the message contained within the text.” He also considers cohesion as semantic relation whereby clauses and phrases are joined together in competent and clear manner.

Ghasemi (2013) examines the role of cohesive devices in writing, highlighting that coherence and cohesion are essential for producing well-structured and understandable texts. The study notes that improper or inadequate use of cohesive devices negatively impacts writing quality. Additionally, it identifies two key challenges: teachers’ limited expertise in teaching coherence and cohesion, and learners’ difficulties in effectively using syntactic and lexical elements, both of which hinder their ability to achieve strong textual organization.

2.4.4 Ideas arrangement

Idea arrangement is also a problem for students in writing the essay. Interesting and logical ideas will attract readers, but it is not easy to organize and develop ideas when writing. If the students have no idea or do not understand the topic clearly, they may be getting out of the topic or failing to convey the main message. Besides, developing ideas and arranging information in a certain way can help to keep the readers centered on the focus of the essay(Ghasemi, 2013).

Students do not know how to arrange ideas logically or lack the main idea or topic sentence in paragraph and essay. Also, sometimes they have too many ideas when writing that lead to sentences that are long, redundant, or unnecessary. Thus, the essay uses the correct grammar, rich and natural vocabulary is not enough because if students make mistakes about how to organize and develop the ideas, the essay will be long, confused, and unattractive (Ghasemi, 2013).

2.5 Famous AI Tools used in Essay Writing

AI tools have gained popularity among educators and students in recent years, particularly in essay writing. These tools facilitate the process of writing by generating ideas, correcting grammar errors, and paraphrasing sentences and even writing full essay. Although they can be quite beneficial, their use also brings up significant issues with originality, academic integrity, and the development of critical writing abilities. This title provides an overview of some of the most popular AI essay writing tools, outlining their features and potential ethical concerns (Schraudner, 2013).

2.5.1 ChatGPT

It is an artificial intelligence application that has experienced rapid development in recent years. ChatGPT is a chatbot developed by OpenAI and uses advanced natural language processing technology. It is a conversational AI that can understand prompts and generate text-based responses. It is used by students often to generate ideas and brainstorm, draft essays, and answer the questions of assignments. Even though it has advantages in speed of access and language, the use of ChatGPT has challenges related to risk that students may rely too heavily on it, submitting work that is not entirely their own. This tool demonstrates the fine line between using AI as a learning aid and crossing into academic dishonesty (Schraudner, 2013).

2.5.2 Grammarly

It is a website for online proofreading that can be used to scan documents for grammar mistakes. Besides, it also provides a correction for spelling, punctuation, synonyms (vocabulary usages) and plagiarism detection. As Schraudner (2013) states: "..... It also offers style-specific correction for a variety of different types of writing. In this particular study, the "Student/Academia" setting was used to assess student writing samples. The site also offers "context optimized synonyms" and an "Adaptive Spell Checker" which claim to offer both spelling and word choice suggestions based on content. Another feature of the

site is plagiarism detection, which checks writing against a database of eight billion web pages. Many students use Grammarly to polish their writing before submitting essays. While it does not generate content like ChatGPT, it still have a great impact in shaping how a final paper appears. Its use is generally considered ethical, especially when it supports learning and self-correction.

2.5.3 Quillbot

It is an online paraphrasing application that uses advanced artificial intelligence to paraphrase any piece of material. The paraphraser in Quillbot changes the original sentences, enabling students to effortlessly revise and rework the source information. The use of Quillbot in academic writing has received attention from several researchers. Several studies on Quillbot's effects on academic writing show that this online tool may help students summarizing lengthy phrases, avoiding plagiarism, and refining language to make it clearer and appear professional (Fitria, 2021; Fitria, 2022; Rakhmanina&Serasi, 2022; Nurul& Siti, 2021; Kurniati&Fithriani, 2022).

Additionally, according to Fitria (2022), Quillbot is a time-saving tool which can help find appropriate synonyms and enhance the clarity of the text. However, ethical concerns arise when it is used to disguise plagiarism or avoid proper citation. Although it helps users learn new ways of expressing ideas, it can also be misused to pass off existing content as original.

Conclusion

Mastering essay writing skills remains a fundamental skill for EFL learners, requiring not just linguistic competence but also analytical depth and personal engagement. The challenges that students face such as: grammar difficulties, coherence issues, and luck of confidence often drive them towards AI tools like ChatGPT and Quilbot ...etc as quick fixes. Yet, overreliance on these technologies may hinder the development of the independent writing skills and intellectual growth.

Chapter Three
Data Analysisand Results

Chapter Three: Data Analysis and Results 44
Introduction 44
3.1 Research Methodology 44
3.2 Validity and Reliability of Students' Questionnaires 45
3.3Analysis of Students' Questionnaire 45
3.4 Teacher Interview Interpretation 72
3.5 Students' Essays Analysis 77
3.6 Discussion of the Results 82
3.6.1 Discussion of Students' Questionnaire Findings 82
3.6.2 Discussion of Teachers' Interview Findings 83
3.6.3 Discussion of Essays Analysis Findings 84
3.6.4 Discussion of the Main Results 86
Conclusion 87
General Conclusion 88
Recommendations 89
Limitations 91
References 92
Appendix A 50
Appendix I: Students' Questionnaire 50
Appendix B: Teachers' Interview 52
الملخص 53

Chapter Three: Data Analysis and Results

Introduction

The present chapter is the practical part of the research, which attempts to investigate the ethical implication of AI generated content on essay writing. This chapter is devoted to analyzing the data gathered from students' questionnaire, teachers' interview, and students' essays.Students' questionnaireisanalyzed statistically, teachers' interview is interpreted thematically, and students' essays are analyzed and interpreted by the researcher. This chapter sheds light on the research methodology, and then it presents the data collected from the three tools. The chapter ends up with some pedagogical recommendations and suggestions for further research.

3.1 Research Methodology

This research aims to investigate the ethical implications of AI generated content on essay writing: the case of third-year students at the Department of English at Mohamed Khider University.The study seeks to expound the research questions and help in determining the research design, sampling methodology and data collection method. In addition, this study follows mixed methods approach because both quantitative and qualitative data help in getting more comprehensive results.Data are collected by means of one questionnaire addressed to 35 students (see appendix B), one interview addressed to 09 teachers (see appendix A), and analysis of 18 essays (see appendix C) of third-year studentswho study in the Department of English at Mohamed Khider University

In order to check that the research instruments are clear, they are piloted before being distributed to the participants. Teachers' interview and students' questionnairewere sent to the supervisor to check, and he suggested some modifications. Based on the supervisors' suggestions, the tools were modified.

3.2 Validity and Reliability of Students' Questionnaires

Students' questionnaire validity was measured using Pearson correlation coefficient to determine the internal. The reliability of the questionnaires was also measured using Cronbach's alpha factor, which calculate the stability factor (< 0.5 unacceptable; 0.5 poor; 0.6 questionable; 0.7 acceptable; 0.8 good; 0.9 excellent).

Table 1

Students' Questionnaire Validity

	Pearson Correlation	1	0,694
	Sig. (bilateral)		0,05
	N	35	27

Table 1 shows that the correlation coefficient of the study tool is statistically significant at the level (**0.05**). As for the value of the validity factor of the current tool, it was proven to reach **0.694**. As a result, the coefficient of validity is moderate and the tool is valid.

Table 2

Students' Questionnaire Reliability

Cronbach Alpha	**Number of Questions**
0,700	27

Table 2 shows the stability factor of the current research instrument. It reached **0.700** which is high and suitable for research purposes. As a result, the developed questionnaire is reliable and its results are consistent over time.

3.3Analysis of Students' Questionnaire

Students' questionnaire is addressed to 35third-year EFL students from the Department of English at Mohamed Khider University. It consists of twenty-five questions divided into five sections; each section contains five questions. Section one is entitled AI-Generated Content, section two is entitled Perceptions of Ethical Concerns, section three is entitled AI Impacts on Students' Writing Skills, section four is entitled Ethical Guidelines and Future Implications, and section five is entitled Ethics Measurement (Rest's Four-Component Model of Moral Behavior (1986)). The aim of the questionnaire if to seek students' opinions

toward AI generated content and towards the impact of AI-generated content on students' essays writing.

Section One: AI-Generated Content

Item 1: Students' Age

Table 3
Students' Age

Option	Frequency	Percentage
20-24	28	80%
25-30	3	8,57%
More than 30	1	2,86%
Total	35	100%

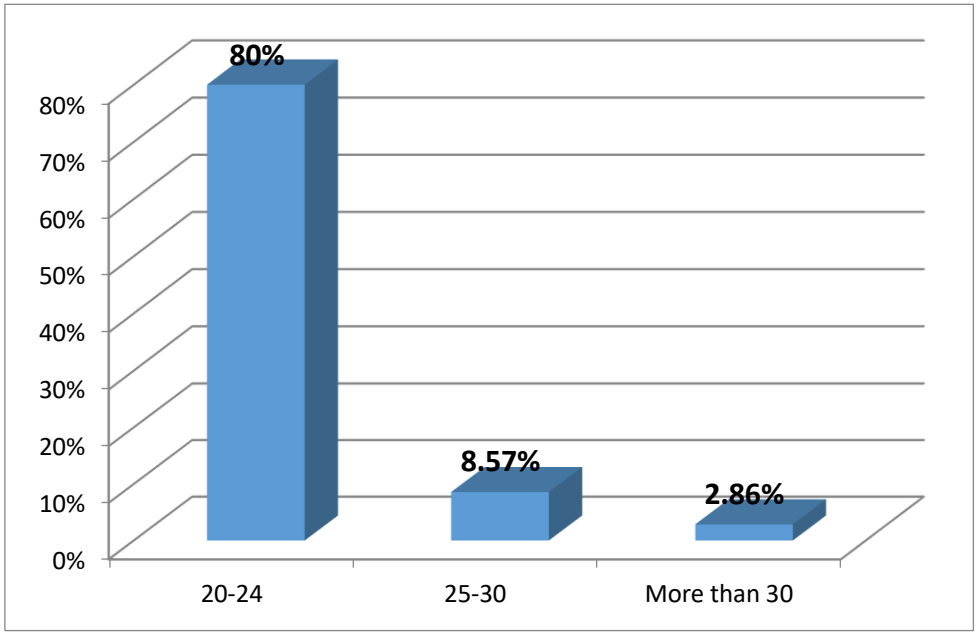

Figure 5 Students' Age

According to Figure 2 and Table 2 above, the majority of students (80%) are between the age of 20 and 24years old, 8.57% of them are between the age of 25 and 30 years old, and 2.86% of them are above the age of 30%. The results show that age gap between students is not wide, making them a suitable sample for the current study.

Item 2:Students' Gender

Table 4
Students' Gender

Option	Frequency	Percentage
Male	7	20,0%
Female	28	80,0%
Total	35	100%

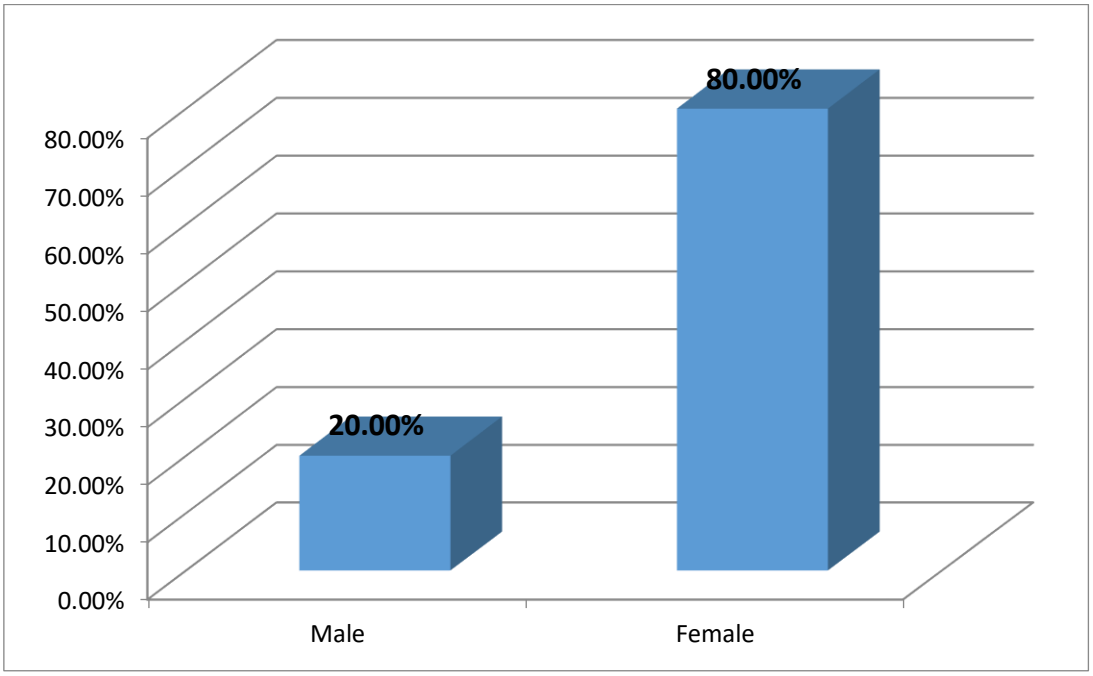

Figure 6*Students' Gender*

Table 2 and Figure 2 above show that the majority of the students are females (80%), and the minority of them (20%) is males. The results show that female students are more representative in this study.

Item 3: I am familiar with AI tools such as ChatGPT, Grammarly, or QuillBot in academic writing.

Table 5
Students' Familiarity with AI Tools such as ChatGPT, Grammarly, or QuillBot in Academic Writing

Option	Frequency	Percentage
Agree	13	37,1%
Disagree	2	5,7%
Neutral	3	8,6%
Strongly agree	17	48,6%
Strongly Disagree	0	0%
Total	35	100%

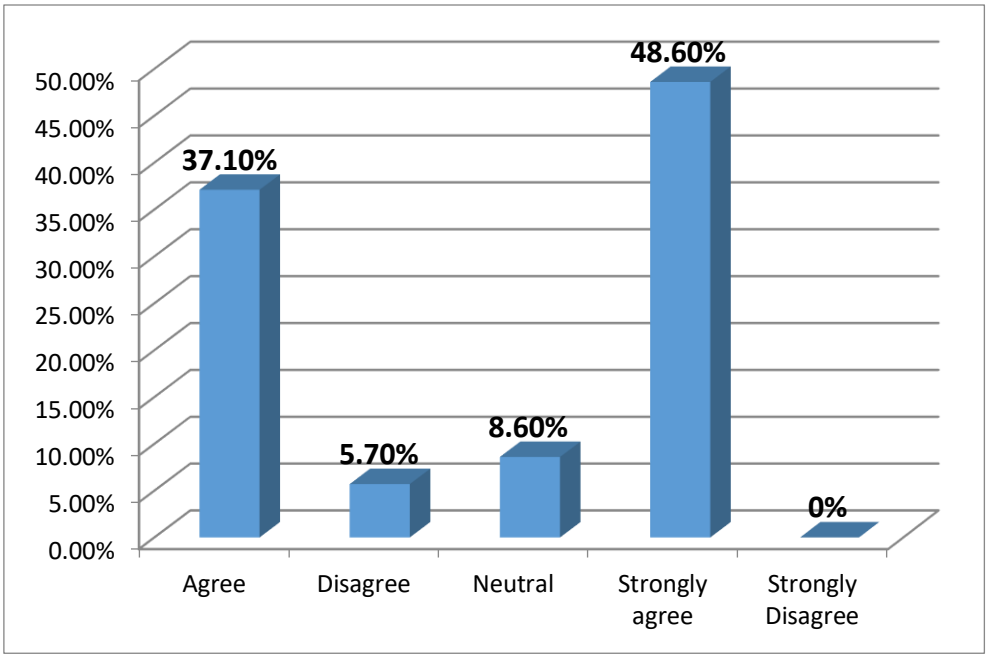

Figure 7*Students' Familiarity with AI Tools such as ChatGPT, Grammarly, orQuillBot in Academic Writing*

According to Table 3 and Figure 3 above, the majority of the students (48.60%) strongly agree that they are familiar with AI tools such as ChatGPT, Grammarly, andQuillBot in academic writing, and 37.10% of them agree they are familiar with these tools. Only 5.70% of them disagree, and 8.60% of them strongly disagree. The results show that the majority of participants are familiar with AI writing tools which make them the best sample of the current study. They will help in getting more comprehensive results about the ethical implications of AI generated content on essay writing.

Item 4: I frequently use AI tools to assist in writing essays.

Table 6
Frequently of Using AI Tools to assist in Writing Essays

Option	Frequency	Percentage
Agree	16	45,7%
Disagree	3	8,6%
Neutral	9	25,7%
Strongly agree	7	20,0%
Strongly disagree	0	0%
Total	35	100%

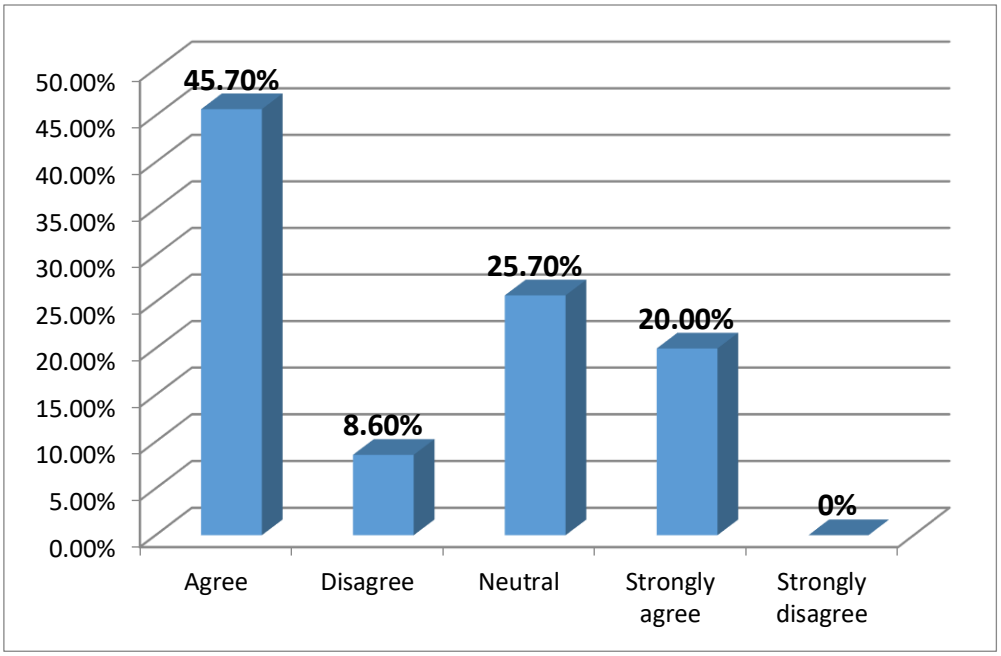

Figure 8*Frequently of Using AI Tools to assist in Writing Essays*

The data shown in Table 4 and Figure 4 above show that the majority of participants (45.70%) agree they frequently use AI tools to assist in writing essays, and 20% of them strongly agree about the use of these tools. Yet, a significant number of respondents (25.70%) were neutral, and 8.60% of them disagreed. The results revealed that the majority of students use AI tools when they write essays. It is clear that, in the age of technology, students cannot avoid the use of AI.

Item5: AI tools have significantly improved the quality of my academic writing.

Table 7
AI Tools Significantly improved the Quality of my Academic Writing

Option	Frequency	Percentage
Agree	20	57,1%
Disagree	3	8,6%
Neutral	6	17,1%
Strongly agree	4	11,4%
Strongly disagree	2	5,7%
Total	35	100%

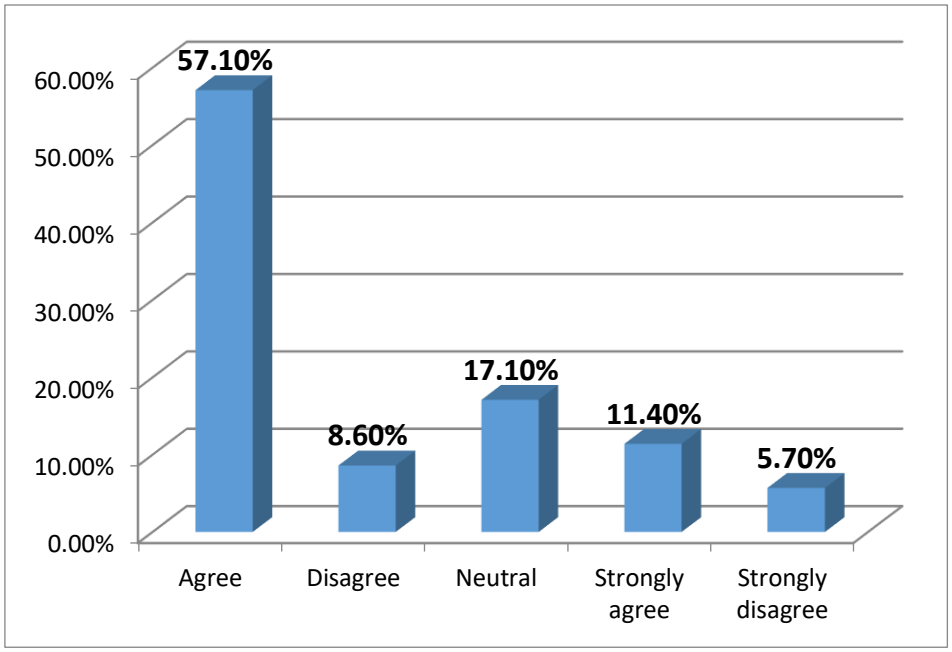

Figure 9*AI Tools Significantly improved the Quality of my Academic Writing*

Table 5 and Figure 5 above makes it clear that more than half of the participants (57.10%) agreed that AI tools have significantly improved the quality of their academic writing, and 11.40% of them strongly agreed. However, a significant number of participants (17.10%) were neutral, 8.60% of them disagreed, and 5.70% of them strongly disagreed. The results show that though there is some disagreement among students, students' overall responses show that AI tools have significantly improved the quality of students' academic writing.

Item6: I believe AI-generated content helps in idea generation.

Table 8
AI-Generated Content helps in Idea Generation

Option	Frequency	Percentage
Agree	18	51,4%
Disagree	2	5,7%
Neutral	5	14,3%
Strongly agree	10	28,6%
Strongly Disagree	0	0%
Total	35	100%

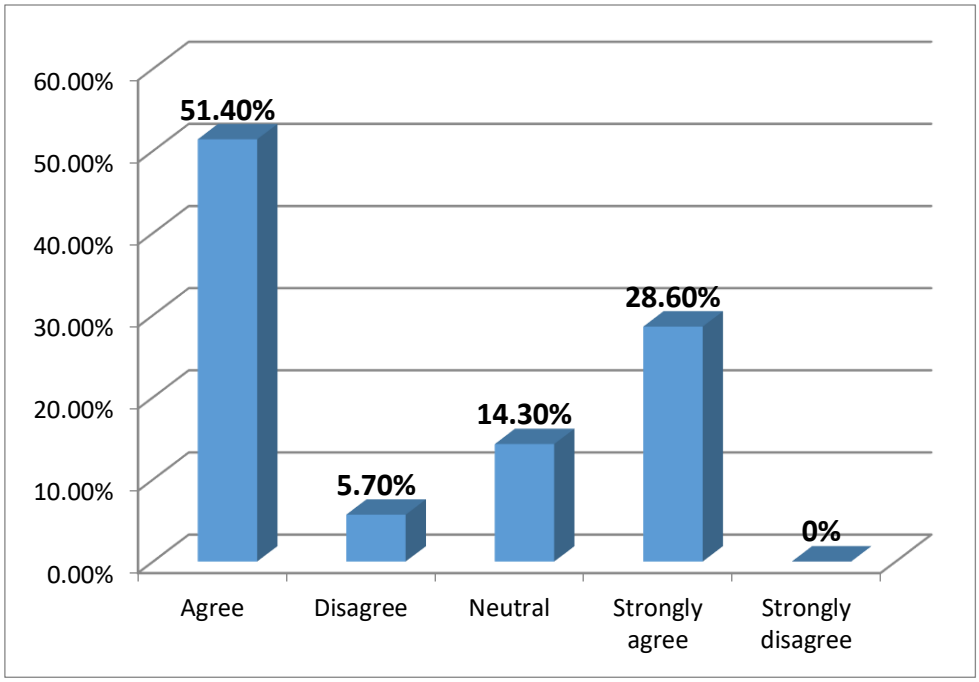

Figure 10*AI-Generated Content helps in Idea Generation*

Students were asked if they believe AI-generated content helps in idea generation or not; thus, according to Table 6 and Figure 6 above, more than half of the participants (51.40%) agreed that AI tools helps in generating ideas. In addition, 28.60% of them strongly agreed. Yet, 14.30% of the respondents were neutral, and 5.70% of them disagreed. The results reveal that AI tools helps students in generating ideas, making it a good tool to help students improve their writing skills.

Item7: I fully understand the ethical concerns associated with using AI in essay writing.

Table 9
Understanding the Ethical Concerns associated with Using AI in Essay Writing

Option	Frequency	Percentage
Agree	16	45,7%
Disagree	2	5,7%
Neutral	11	31,4%
Strongly agree	6	17,1%
Strongly Disagree	0	0%
Total	35	100%

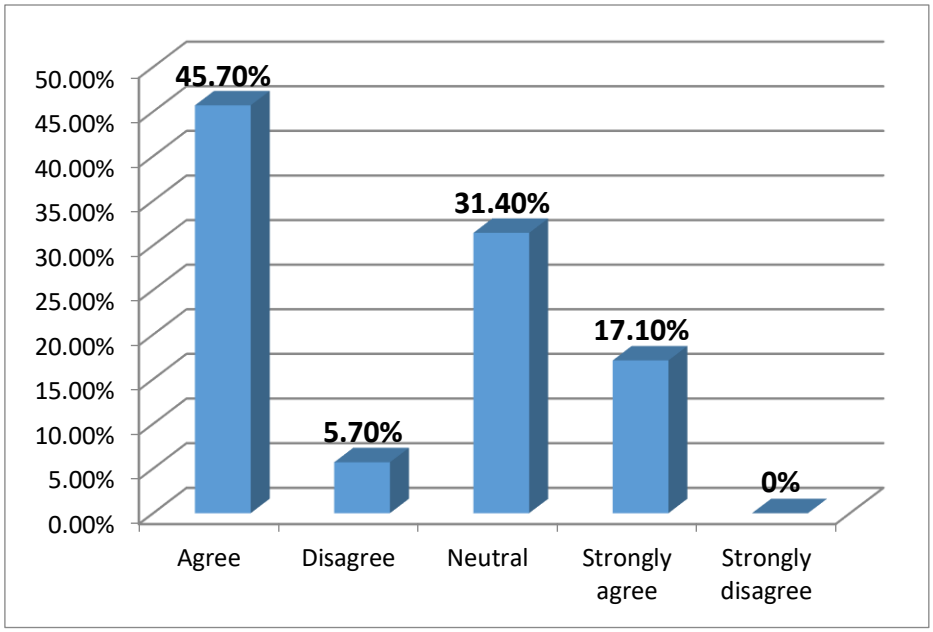

Figure 11*Understanding the Ethical Concerns associated with Using AI inEssay Writing*

Table 7 and Figure 7 illustrate students' answers towards understanding the ethical concerns associated with using AI in essay writing. The majority of the respondents (45.70%) agreed that they fully understand the ethical concerns associated with using AI in essay writing, and 17.10% of them strongly agreed. Nevertheless, 31.40% of the students were neutral, and 5.70% of them disagreed. The results show that though the majority of students fully understand the ethical concerns associated with using AI in essay writing, there is a significant number of students who do not fully understand the ethical concerns associated with using AI in essay writing.

Section Two: Perceptions of Ethical Concerns

Item8: Using AI-generated content in essay writing is a form of academic dishonesty.

Table 10
Using AI-Generated Content in Essay Writing is a form of Academic Dishonesty

Option	Frequency	Percentage
Agree	18	51,4%
Disagree	3	8,6%
Neutral	10	28,6%

Strongly agree	4	11,4%
Strongly Disagree	0	0%
Total	35	100%

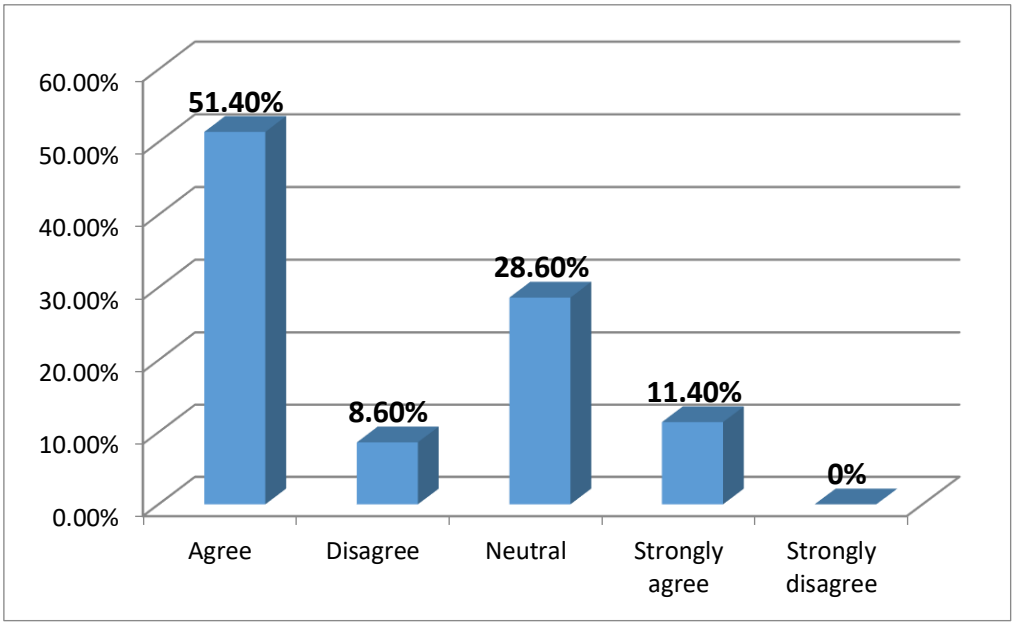

Figure 12*Using AI-Generated Content in Essay Writing is a form ofAcademic Dishonesty*

According to Table 8 and Figure 8 above, more than half of the participants (51.40%) agree that using AI-generated content in essay writing is a form of academic dishonesty, and 11.40% of them strongly agreed. Yet, a significant number of them (28.60%) were neutral. Only 8.60% of them disagreed that using AI-generated content in essay writing is a form of academic dishonesty. The results show that students do not mind using AI tools to write their essays.

Item9: AI-generated essays increase the risk of plagiarism.

Table 11
AI-Generated Essays Increase the Risk of Plagiarism

Option	Frequency	Percentage
Agree	20	57,1%
Disagree	3	8,6%
Neutral	4	11,4%
Strongly agree	8	22,9%
Strongly Disagree	0	0%
Total	35	100%

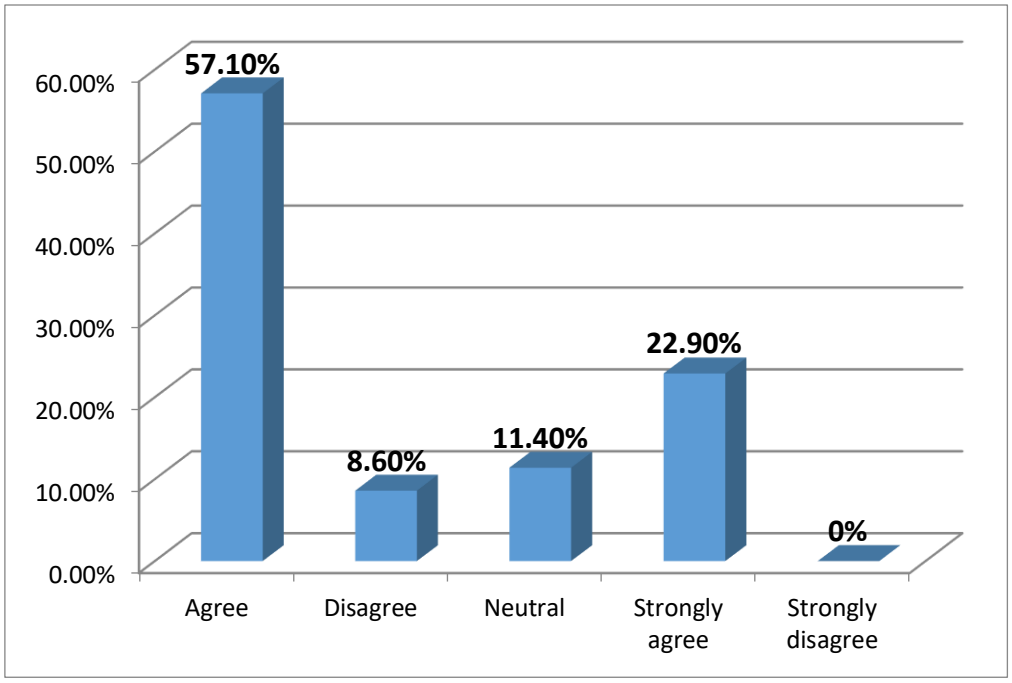

Figure 13*AI-Generated Essays Increase the Risk of Plagiarism*

Having a quick look at Table 9 and Figure 9 above makes it clear that the majority of the respondents agree (57.10%) that AI-generated essays increase the risk of plagiarism, and 22.90% of them strongly agree. Only 8.60% of them disagreed, and 11.40% of them were neutral. The results show that though students do not mind using AI tools to write their essays, they agree that these tools increase the risk of plagiarism.

Item10: AI-generated content reduces students' originality and critical thinking skills.

Table 12
AI-Generated Content Reduces Students' Originality and Critical Thinking Skills

Option	Frequency	Percentage
Agree	18	51,4%
Disagree	1	2,9%
Neutral	6	17,1%
Strongly agree	10	28,6%
Strongly Disagree	0	0%
Total	35	100%

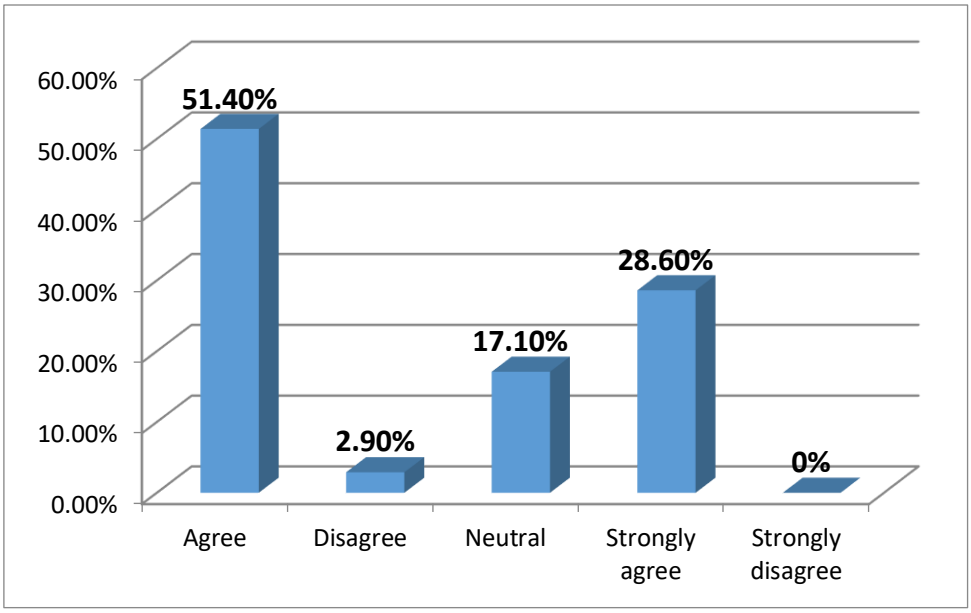

Figure 14*AI-Generated Content Reduces Students' Originality and CriticalThinking Skills*

Students were asked if they think AI-generated content reduces students' originality and critical thinking skills; therefore, more than half of them (51.40%) agreed that AI-generated content reduces students' originality and critical thinking skills. Moreover, 28.60% of them strongly agree, and only 2.90% of them disagreed. Additionally, a significant number of students (17.10%) were neutral. The results show that although students do not mind using AI tools to write their essays, they agree that these tools reduce students' originality and critical thinking skills.

Item11: AI tools should not be used to generate entire essays for academic purposes.

Table 13
AI Tools should not be used to generate entire Essays for Academic Purposes

Option	Frequency	Percentage
Agree	13	37,1%
Disagree	1	2,9%
Neutral	4	11,4%
Strongly agree	17	48,6%
Strongly Disagree	0	0%
Total	35	100%

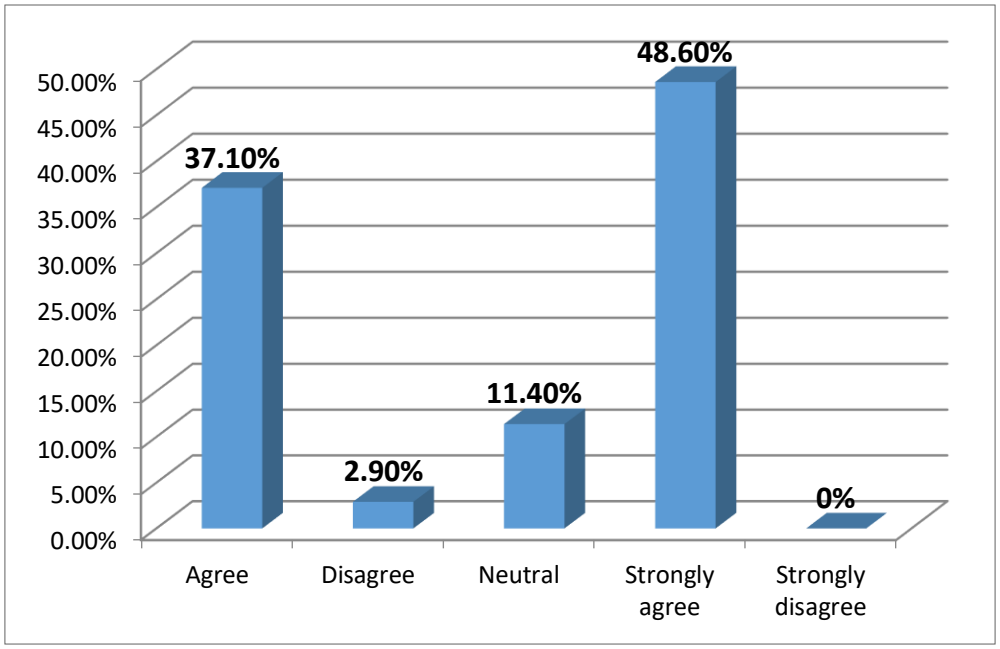

Figure 15*AI Tools should not be used to generate entire Essays for Academic Purposes*

According to Table 11 and Figure 11 above, the majority of participants (48.60) strongly agreed that AI tools should not be used to generate entire essays for academic purposes, and 37.10% of them agreed on the same idea. Yet, 11.40% of them were neutral, and 2.90% of them disagreed. Although students do not mind using AI tools to write their essays, the results show general censuses that AI tools should not be used to generate entire essays for academic purposes.

Item 12: It is ethical to use AI for grammar correction and paraphrasing in academic writing.

Table 14
Ethical Use of AI for Grammar Correction and Paraphrasing in Academic Writing

Option	Frequency	Percentage
Agree	19	54,3%
Disagree	3	8,6%
Neutral	4	11,4%
Strongly agree	8	22,9%
Strongly disagree	1	2,9%
Total	35	100%

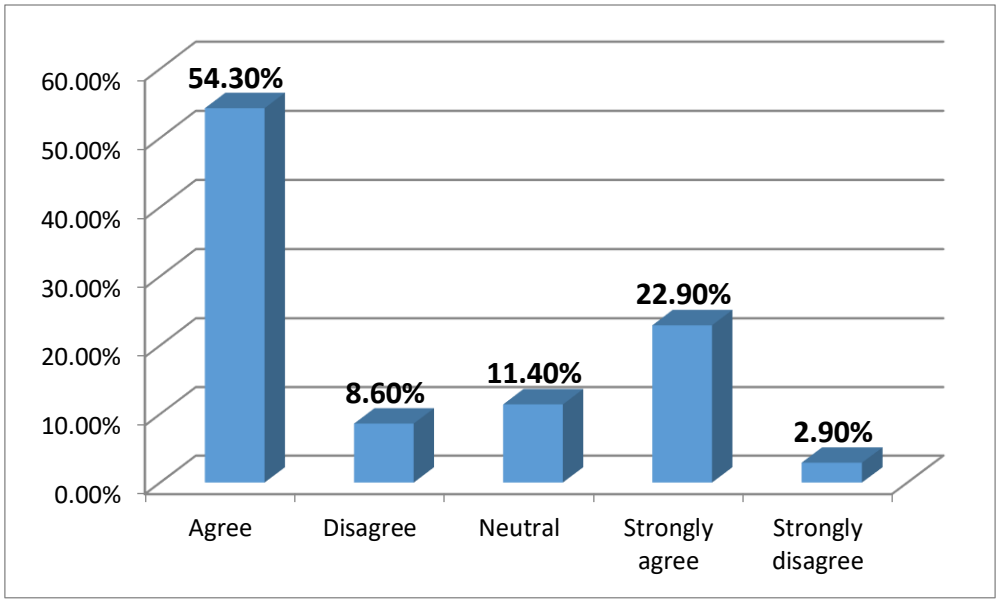

Figure 16*Ethical Use of AI for Grammar Correction and Paraphrasing in Academic Writing*

Students were asked if it is ethical to use AI for grammar correction and paraphrasing in academic writing. Therefore, according to Table 12 and Figure 12 above, more than half of the participants (54.30%) agreed that it is ethical to use AI for grammar correction and paraphrasing in academic writing, and 22.90% of them strongly agreed about the same idea. Yet, 11.40% of them were neutral, 8.60% disagree, and 2.90% strongly disagreed. Since most students use AI tools to write their essays, the results show that they also find it ethical to use them.

Section Three: AI Impacts on Students' Writing Skills

Item 13: AI tools enhance students' writing skills by providing feedback and corrections.

Table 15
AI Tools enhance Students' Writing Skills by providing Feedback and Corrections

Option	Frequency	Percentage
Agree	20	57,1%
Disagree	2	5,7%
Neutral	5	14,3%
Strongly agree	8	22,9%
Strongly Disagree	0	0%
Total	35	100%

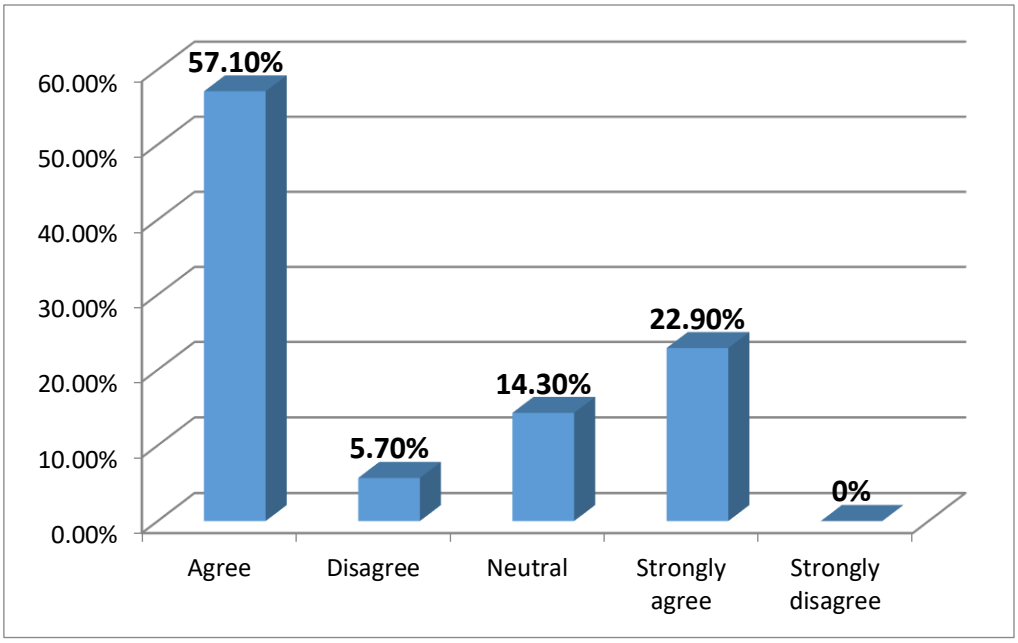

Figure 17*AI Tools enhance Students' Writing Skills by providing Feedbackand Corrections*

According to Table 13 and Figure 13 above, more than half of the participants (57.10%) agreed that AI tools enhance students' writing skills by providing feedback and corrections, and 22.90% of them strongly agreed with this idea. Only 14.30% of them were neutral, and 5.70% of them disagreed. The results show that students agree that the use of AI tools in academic writing is helpful because they provide them with corrective feedback, making them be better writers.

Item 14: Dependence on AI for writing can result in excessive reliance and decline in essential writing skills.

Table 16
Dependence on AI for Writing can result in Excessive Reliance and decline in Essential Writing Skills

Option	Frequency	Percentage
Agree	16	45,7%
Disagree	3	8,6%
Neutral	9	25,7%
Strongly agree	6	17,1%
Strongly disagree	1	2,9%
Total	35	100%

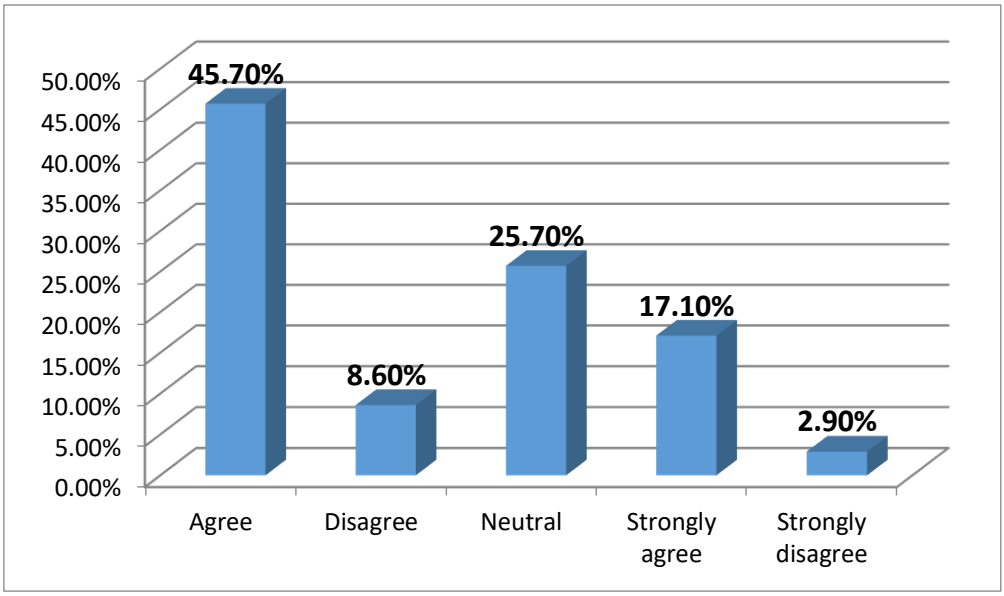

Figure 18*Dependence on AI for Writing can result in Excessive Reliance and declinein Essential Writing Skills*

Students were asked if the dependence on AI for writing can result in excessive reliance and decline in essential writing skills. Thus, the majority of them (45.70%) agreed with this idea and 17.10% of them strongly agreed. Nonetheless, only 8.60% of them disagreed and 2.90% of them strongly disagreed. Additionally, a significant number of students (25.70%) were neutral about the dependence on AI for writing can result in excessive reliance and decline in essential writing skills. The results show that though students do not mind using AI tools to write their essays, they agree that over-dependence on these tools is a real problem.

Item 15: AI-generated essays do not accurately reflect a student's true abilities.

Table 17
AI-Generated Essays do not accurately reflect a Student's True Abilities

Option	Frequency	Percentage
Agree	15	42,9%
Disagree	3	8,6%
Neutral	9	25,7%
Strongly agree	8	22,9%
Strongly Disagree	0	0%
Total	35	100%

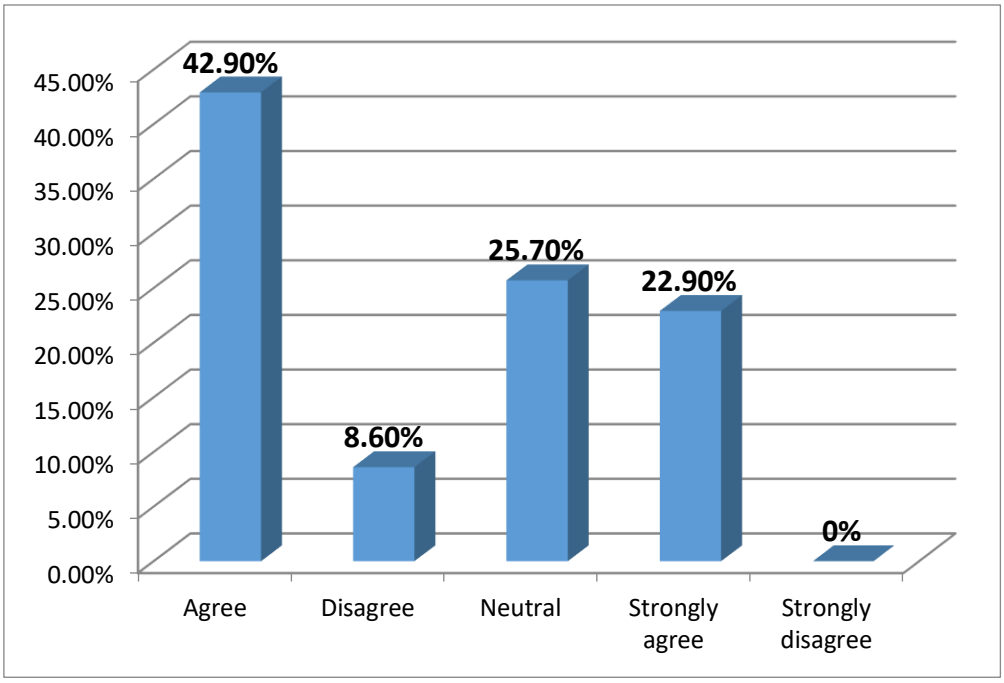

Figure 19*AI-Generated Essays do not accurately reflect a Student's True Abilities*

The data obtained from Table 15 and Figure 15 above show that 42.90% of the respondents agree that AI-generated essays do not accurately reflect a student's true abilities, and 22.90% of them strongly agree with this idea. However, 25.70% of the students were neutral and 8.60% of them disagree that AI-generated essays do not accurately reflect a student's true abilities.The results show that students know that they should not depend on AI tools to write their essays because AI generated essayed do not reflects the students' real levels.

Item 16: AI-generated content should be allowed only for specific academic purposes.

Table 18
AI-Generated Content should be allowed only for Specific Academic Purposes

Option	Frequency	Percentage
Agree	9	25,7%
Disagree	11	31,4%
Neutral	12	34,3%
Strongly agree	1	2,9%
Strongly disagree	2	5,7%
Total	35	100%

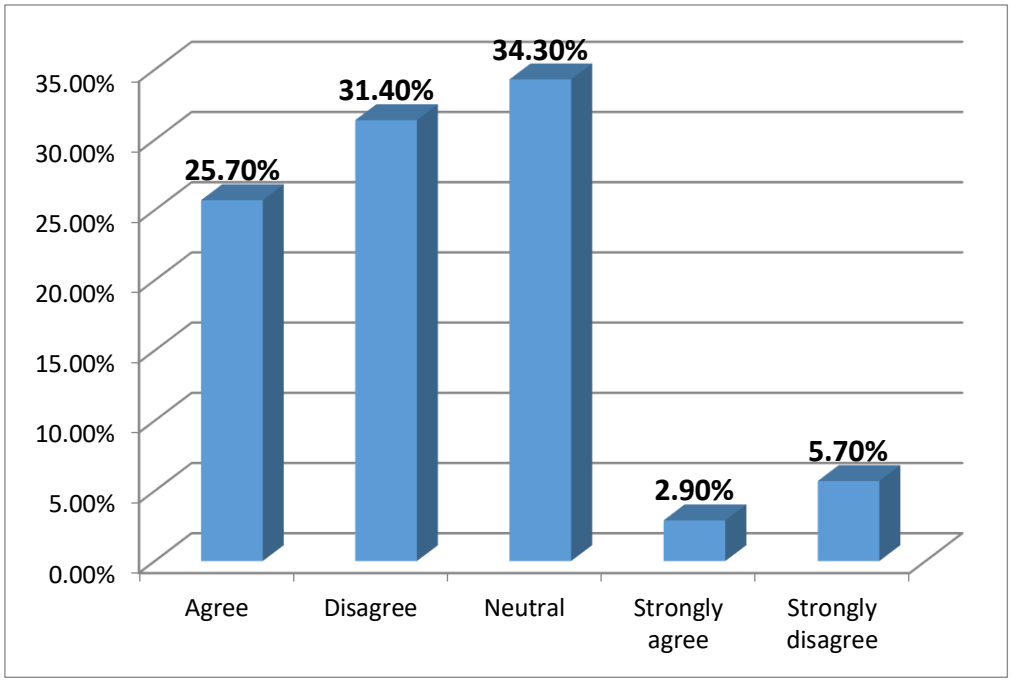

Figure 20*AI-Generated Content should be allowed only for Specific Academic Purposes*

Students were asked if they agree that AI-generated content should be allowed only for specific academic purposes; thus, the majority of them (31.40%) disagreed and 5.70% of them strongly disagreed. On the other hand, 25.70% of the respondents agreed that AI-generated content should be allowed only for specific academic purposes, and 2.90% of them strongly agreed with this idea. Interestingly, 34.30% of the participants were neutral.The results show that students are aware that AI tools should be used moderately and only for specific purposes.

Item 17: AI usage in writing assignments can be beneficial if used responsibly.

Table 19
AI Usage in Writing Assignments can be Beneficial if used responsibly

Option	Frequency	Percentage
Agree	18	51,4%
Disagree	1	2,9%
Neutral	5	14,3%
Strongly agree	10	28,6%
Strongly disagree	1	2,9%
Total	35	100%

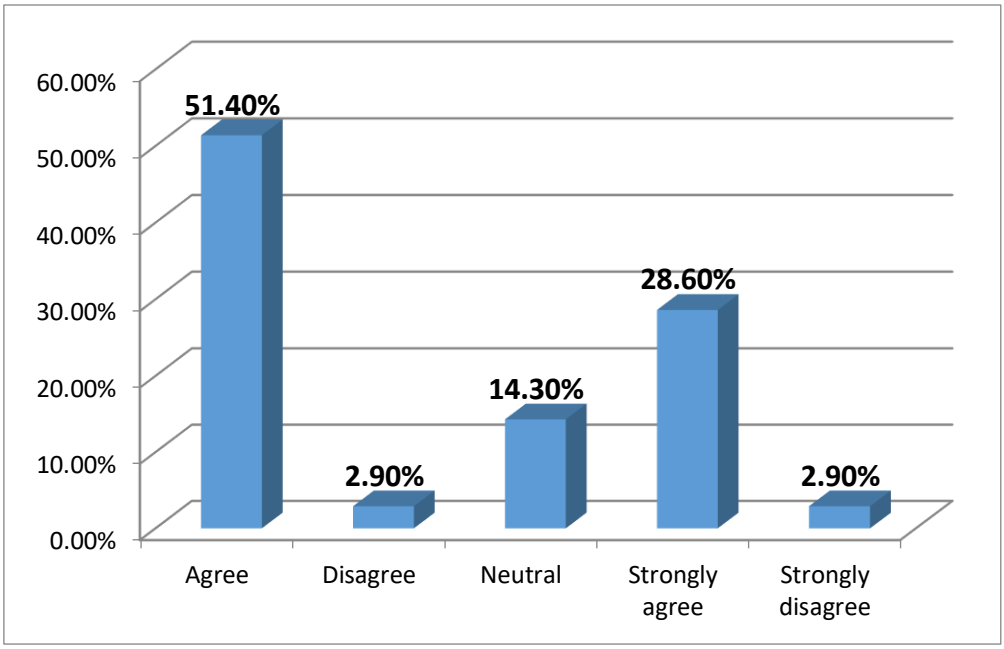

Figure 21*AI Usage in Writing Assignments can be Beneficial if used responsibly*

According to Table 17 and Figure 17, more than half of the participants (51.40%) agree that AI usage in writing assignments can be beneficial if used responsibly, and 28.60% of the respondents agree about the same idea. Yet, 2.90% of them disagree and other 2.90% strongly disagree. Also, 14.30% of the respondents were neutral about AI usage. The results show that since students are aware that AI tools should be used wisely, teachers can guide and give them instructions about how to use these tools without affecting students' writings.

Section Four: Ethical Guidelines and Future Implications

Item 18: AI-generated essays should be clearly labeled when submitted for assessment.

Table 20
AI-Generated Essays should be clearly labelled when submitted for Assessment

Option	Frequency	Percentage
Agree	20	57,1%
Disagree	3	8,6%
Neutral	10	28,6%
Strongly agree	2	5,7%
Strongly Disagree	0	0%
Total	35	100%

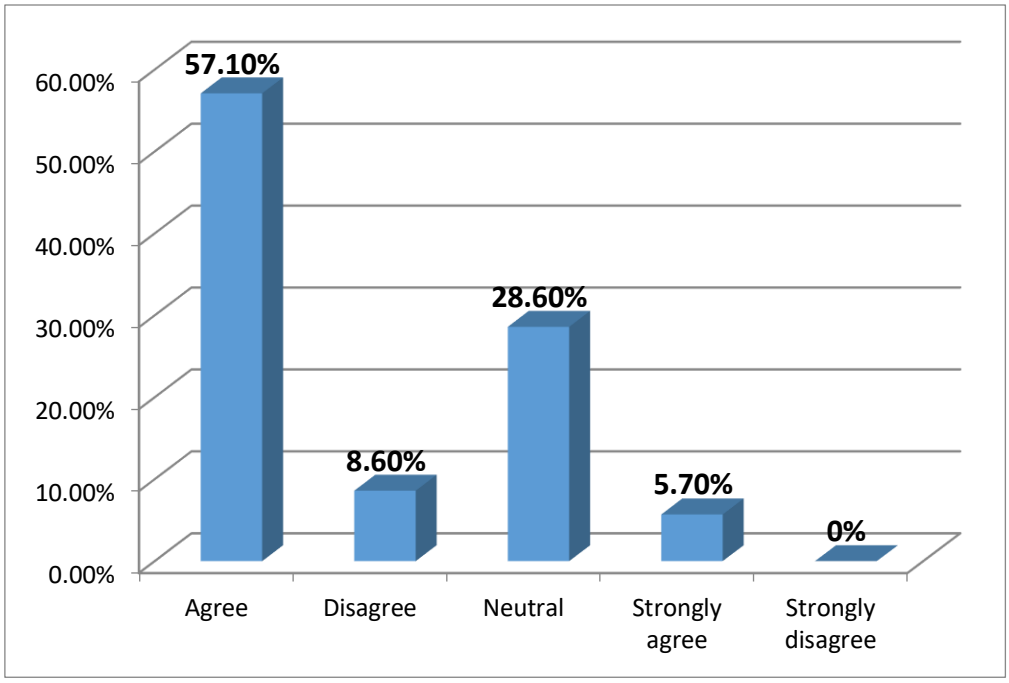

Figure 22*AI-Generated Essays should be clearly labelled when submitted for Assessment*

The majority of students (57.10%) agree that AI-generated essays should be clearly labelled when submitted for assessment, and 5.70% of them strongly agreed. Yet, only 8.60% of them disagree that AI-generated essays should be clearly labelled when submitted for assessment, and 28.60% of them are neutral. The results show that students' consciousness about the situations of AI tools.

Item 19: AI should be banned in academic essay writing to ensure fairness.

Table 21
AI should be banned in Academic Essay Writing to ensure Fairness

Option	Frequency	Percentage
Agree	8	22,9%
Disagree	10	28,6%
Neutral	12	34,3%
Strongly agree	4	11,4%
Strongly disagree	1	2,9%
Total	35	100%

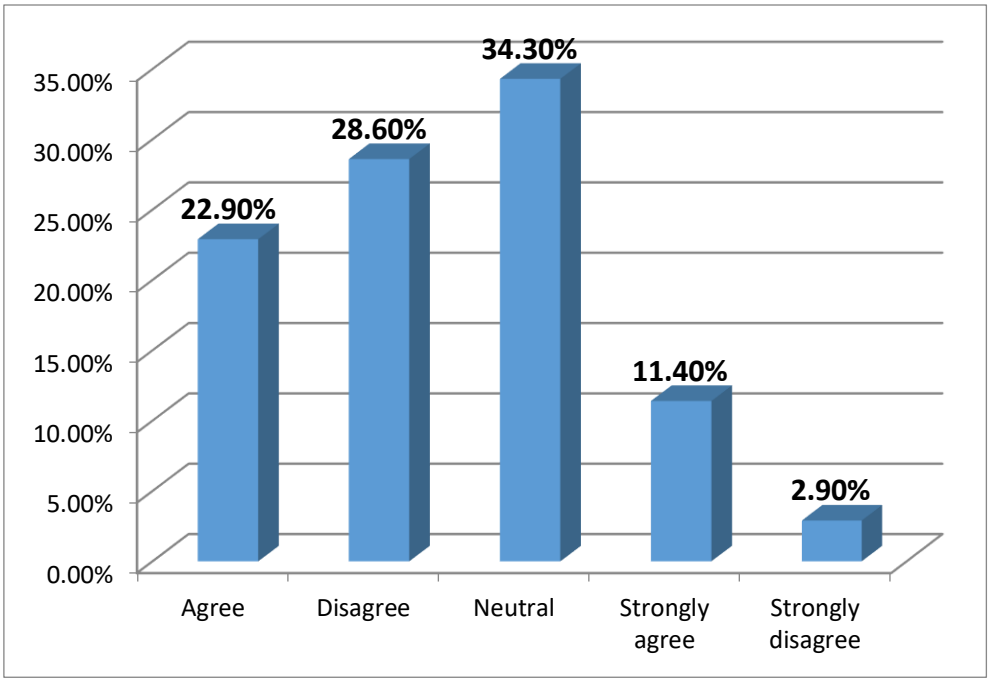

Figure 23*AI should be banned in Academic Essay Writing to ensure Fairness*

Students were asked if they agree that AI should be banned in academic essay writing to ensure fairness; thus, students selected varied choices. The majority of them (28.60%) disagree that AI should be banned in academic essay writing to ensure fairness, and 2.90% of them strongly disagree. However, 22.90% of them agree that AI should be banned in academic essay writing to ensure fairness, and 11.40% of them strongly agree. In addition, a significant number of students (34.30%) were neutral.The results show that students are against AI ban in academic essays.

Item 20: Universities should develop clear ethical guidelines on AI use in academic writing.

Table 22
Universities should develop Clear Ethical Guidelines on AI Use in Academic Writing

Option	Frequency	Percentage
Agree	15	42,9%
Disagree	3	8,6%
Neutral	6	17,1%
Strongly agree	11	31,4%
Strongly Disagree	0	0%
Total	35	100%

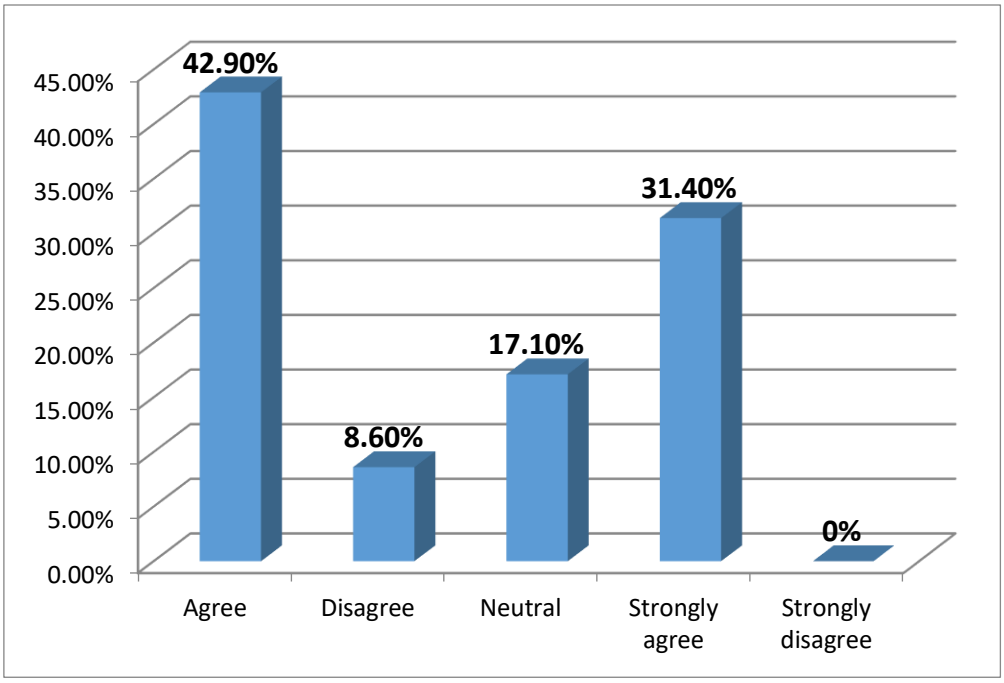

Figure 24*Universities should develop Clear Ethical Guidelines on AI Use in Academic Writing*

According to Table 20 and Figure 20 above, the majority of the students agree (42.90%) and strongly agree (31.40%) that universities should develop clear ethical guidelines on AI use in academic writing. Only 8.60% of them disagree, and only 17.10% of them are neutral. As shown above discussed results, this result also confirms that students are aware that AI tools should be used wisely for specific purposes.

Item21: Teachers should educate students on the ethical use of AI-generated content.

Table 23
Teachers should educate Students on the Ethical Use of AI-Generated Content

Option	Frequency	Percentage
Agree	16	45,7%
Disagree	1	2,9%
Neutral	3	8,6%
Strongly agree	14	40,0%
Strongly disagree	1	2,9%
Total	35	100%

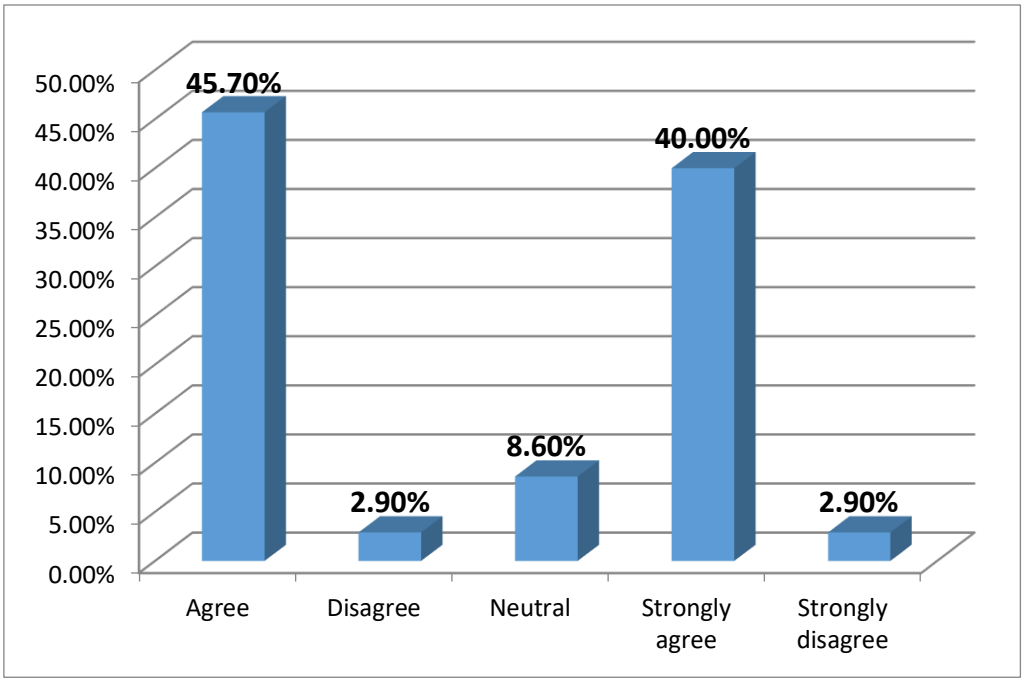

Figure 25*Teachers should educate Students on the Ethical Use of AI-Generated Content*

Students were asked if teachers should educate students on the ethical use of AI-generated content. Thus, the majority of them (45.70%) and (40%) of them strongly agree that teachers should educate students on the ethical use of AI-generated content. However, only 2.90% of them disagreed, and other 2.90% of them strongly disagree. Only 8.60% of the participants were neutral. Teachers as asked to guide students about the use of AI tools and their effects on the originality of students' writings

Item 22: Students should be responsible for ensuring ethical AI usage in their essays

Table 24
Students should be responsible for ensuring Ethical AI Usage in their Essays

Option	Frequency	Percentage
Agree	21	60,0%
Disagree	0	0%
Neutral	4	11,4%
Strongly agree	10	28,6%
Strongly Disagree	0	0%
Total	35	100%

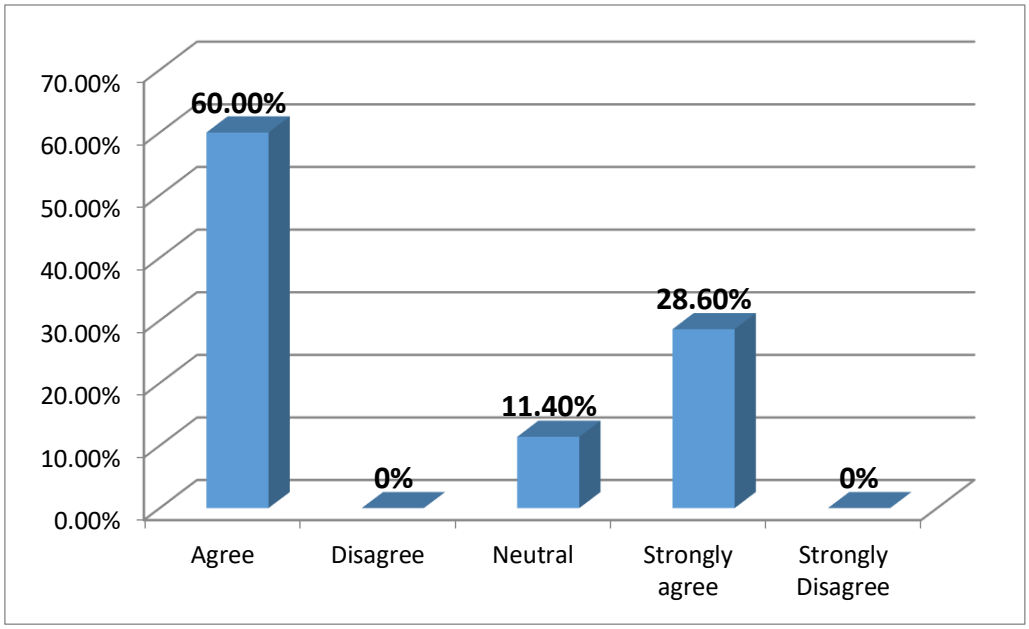

Figure 26*Students should be responsible for ensuring Ethical AI Usage in their Essays*

The data obtained from Table 22 and Figure 22 show that the majority of students (60%) agree that students should be responsible for ensuring ethical AI usage in their essays, yet 11.40% of them disagree. In addition, 28.60% of the participants are neutral about taking responsibility for ensuring ethical AI usage in their essays. Though students use AI tools to write their essays, they are aware they should be responsible for ensuring ethical AI usage.

Section Five: Ethics Measurement (Rest's Four-Component Model of Moral Behavior (1986))

Item 23: I can recognize when the use of AI tools crosses ethical boundaries in academic writing.

Table 25
Students can recognize when the use of AI Tools cross Ethical Boundaries in Academic Writing

Option	Frequency	Percentage
Agree	22	62,9%
Disagree	1	2,9%
Neutral	9	25,7%
Strongly agree	3	8,6%
Strongly Disagree	0	0%
Total	35	100%

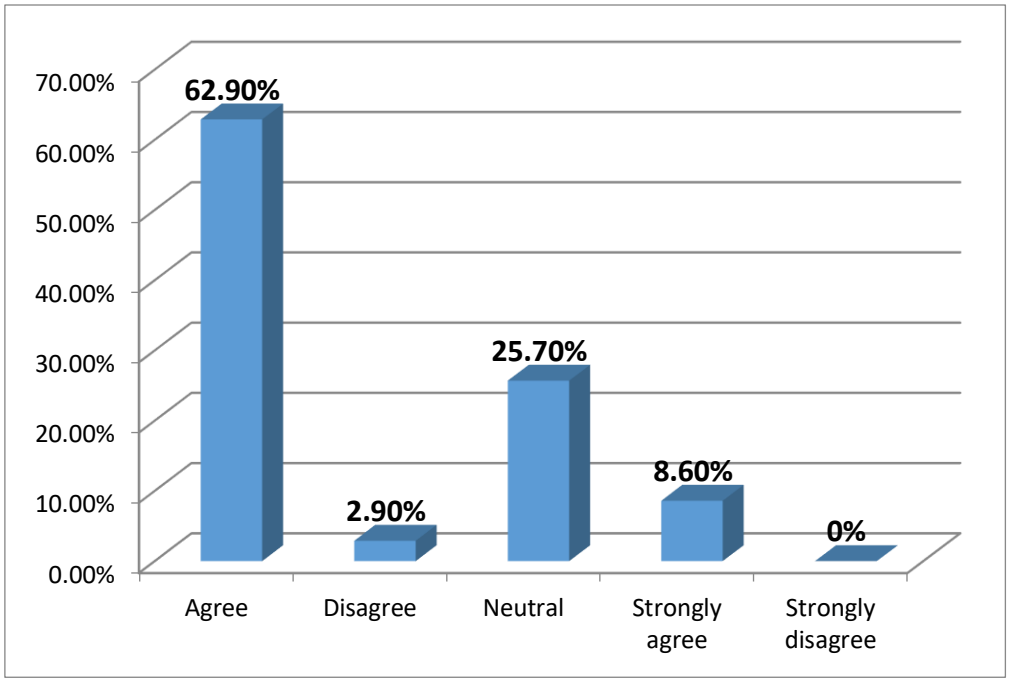

Figure 27*Students can recognize when the use of AI Tools cross Ethical BoundariesinAcademic Writing*

Applying Rest's Four-Component Model of Moral Behavior (1986), students were asked if they can recognize when the use of AI tools crosses ethical boundaries in academic writing. Thus, the majority of them (62.90%) of them agree that they recognize when the use of AI tools crosses ethical boundaries, and 8.60% of them strongly agree. Only 2.90% of them disagree. Additionally, 25.70% of them are neutral. The results show that students recognize when the use of AI tools crosses ethical boundaries.

Item 24: I believe it is wrong to submit AI-generated essays as my own work.

Table 26
Students believe it is wrong to submit AI-Generated Essays

Option	Frequency	Percentage
Agree	15	42,9%
Disagree	4	11,4%
Neutral	6	17,1%
Strongly agree	10	28,6%
Strongly Disagree	0	0%
Total	35	100%

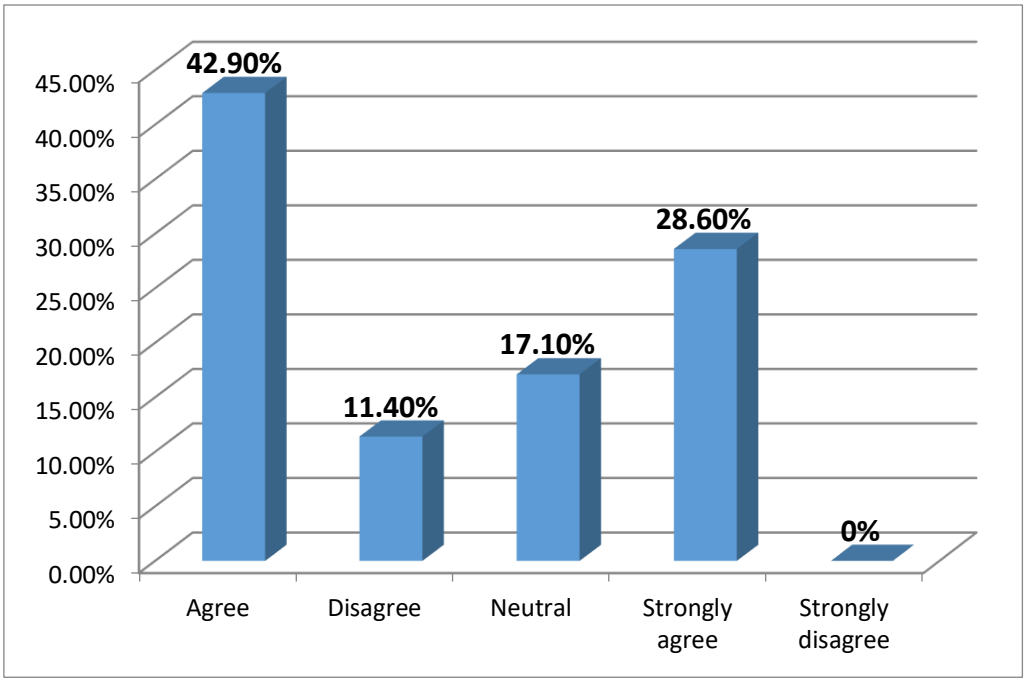

Figure 28*Students believe it is wrong to submit AI-Generated Essays*

Following Rest's Four-Component Model of Moral Behavior (1986) and according to Table 24 and Figure 24, the majority of students (42.90%) agree that they believe it is wrong to submit AI-generated essays as their own work. In addition, 28.60% of them strongly agree that they believe it is wrong to submit AI-generated essays as their own work, yet only 11.40% of them disagree. Only 17.10% of them were neutral.The results show that students they believe it is wrong to submit AI-generated essays as their own work.

Item 25: I think students should be motivated to act ethically, even when AI tools make cheating easier.

Table 27
Students should be motivated to act ethically, even when AI Tools make Cheating Easier

Option	Frequency	Percentage
Agree	19	54,3%
Disagree	1	2,9%
Neutral	5	14,3%
Strongly agree	10	28,6%
Strongly Disagree	0	0%
Total	35	100%

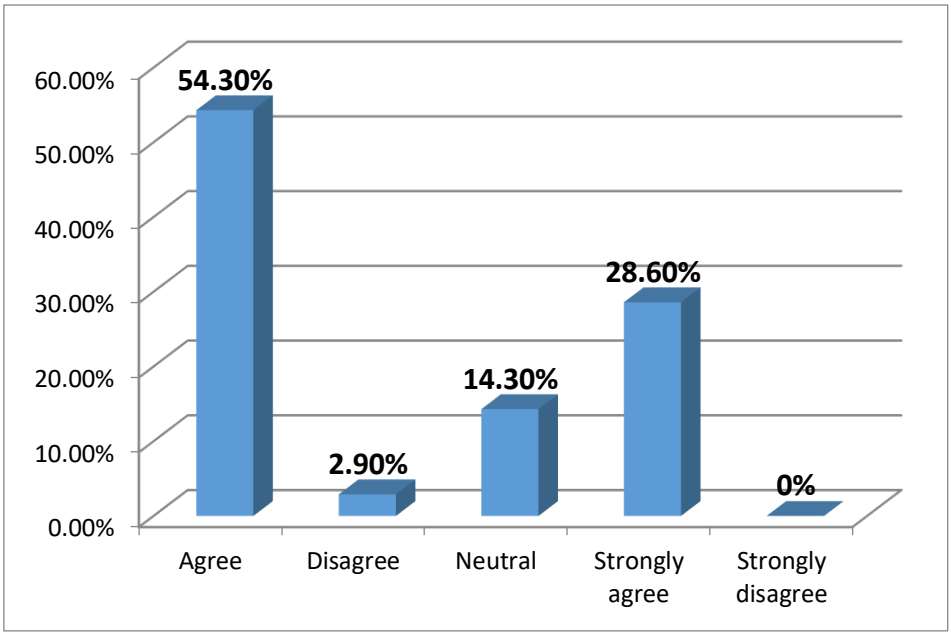

Figure 29*Students should be motivated to act ethically, even when AI Tools make Cheating Easier*

Following Rest's Four-Component Model of Moral Behavior (1986), and according to Table 25 and Figure 25, the majority of the participants (54.30%) agree that they think students should be motivated to act ethically, even when AI tools make cheating easier. And 28.60% of them agree with this idea. Nevertheless, only 2.90% of them disagree, and 14.30% of them were neutral. The results show thatstudents know that they must be motivated to act ethically

Item 26: I take personal responsibility for ensuring that my academic work is ethical, even when using AI.

Table 28
Students take Personal Responsibility for ensuring that their Academic Work is Ethical, even when using AI

Option	Frequency	Percentage
Agree	19	54,3%
Disagree	2	5,7%
Neutral	8	22,9%
Strongly agree	6	17,1%
Strongly Disagree	0	0%
Total	35	100%

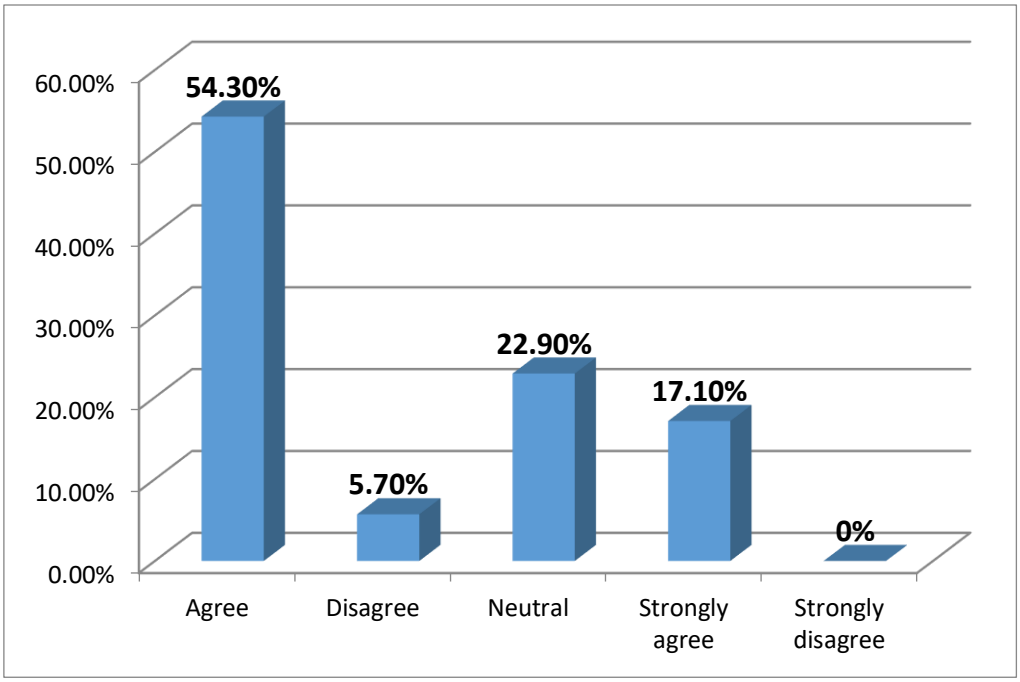

Figure 30*Students take Personal Responsibility for ensuring that their Academic Work is Ethical, even when using AI*

Following Rest's Four-Component Model of Moral Behavior (1986), the data obtained from Table 26Figure 26 show that the majority of students (54.29%) agree that they take personal responsibility for ensuring that their academic work is ethical, even when using AI.And 17.14% of them strongly agree. Yet, only 5.71% of them disagree, and 22.86% of them were neutral. The results show thatstudentsagree that they take personal responsibility for ensuring that their academic work is ethical.

Item 27: I consider the consequences of using AI unethically in my studies.

Table 29
Students consider the Consequences of using AI unethically in their Studies

Option	Frequency	Percentage
Agree	17	48,6%
Disagree	1	2,9%
Neutral	7	20,0%
Strongly agree	10	28,6%
Strongly Disagree	0	0%
Total	35	100%

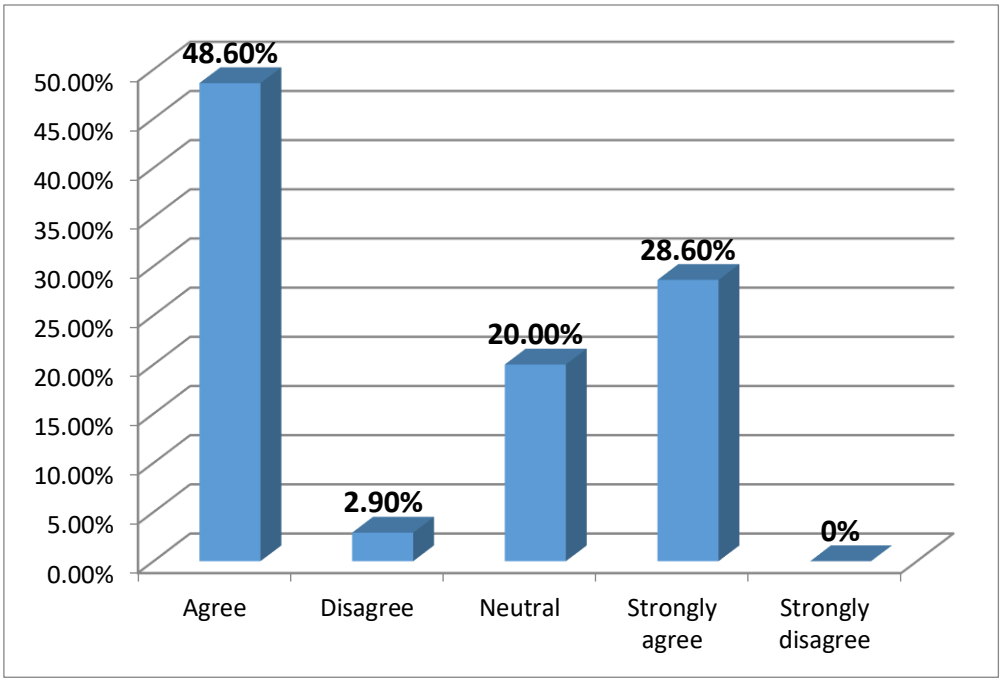

Figure 31*Students consider the Consequences of using AI unethically in their Studies*

Following Rest's Four-Component Model of Moral Behavior (1986), Table 27 andFigure 27show that the majority of students (48.57%) agree that they consider the consequences of using AI unethically in their studies.And 28.57% of them strongly agree, yet only 2.86% of them disagree, and 20% of them were neutral. The results show that studentsconsider the consequences of using AI unethically in their studies

3.4 Teacher Interview Interpretation

Teachers' interview is addressed to 09 teachers from the Department of English at Mohamed Khider University of Biskra. It consists of seven questions, and it aims to seek teachers' opinions toward AI generated content and the impact of AI-generated content on students' essays writing. Teachers were asked if they are aware of students using AI tools like ChatGPT or Grammarly in their essay writing, and they were asked if they consider the use of AI-generated content in essays to be a form of academic misconduct. They were also asked about ethical concerns they associate with students using AI tools for writing assignments, and how they address or manage the use of AI-generated content in their classroom. Teachers

were also asked to recommend some guidelines to ensure ethical AI usage in academic writing.

Therefore, according to Braun and Clarke (2006), "thematic analysis is a method for identifying, analysing, and reporting patterns (themes) within data. It minimally organises and describes your data set in (rich) detail." Thus, the interview of the current study is interpreted thematically because thematic analysis is a fundamental qualitative analysis methodology that is flexible and can provide a rich and detailed, albeit complex, description of data. First, the researchers sorted out some initial codes from teachers' interview such as frequent AI use, Academic misconduct, AI misuse versus AI assistance, skill degradation, reduced originality, and guidelines and policies. Then, the research derived some important themes based on these codes. These themes are as follow:

Theme 1: Teachers' High Awareness of AI Use

According to teachers' answers, most of the teachers are aware of students using AI tools like ChatGPT or Grammarly in their essay writing. They claimed that students use AI tools especially in home assignments, dissertations, and online communication. One teacher said: *"Yes, I am aware of that practice. They are currently using it."* Another one said: *"Yes, I am. Imean I know that almost all students often use AI tools such as ChatGPT, especially when they write online messages, or Master dissertations."* Another teacher claimed: *"Yes, I am. I mean I know that almost that students often use AI tools such as ChatGPT, especially when they write online messages, or Master dissertation. "*

Theme 2: Teachers' Views on Academic Misconduct

According to interviewees' replies, most of the teachers consider the use of AI-generated content in essays to be a form of academic misconduct only when students over-rely on it; *"It is misconduct when the student heavily relies on it."*Other teacher said: *"If it is done*

completely with AI, yes, it is misconduct; but if it is used only as a helping tool for generating ideas or for polishing the student's final draft, here it is useful and ethical." Another teacher answered: *"Using generated AI for generating ideas, organizing data and revising written production might be helpful for students. However, relying on a copy past method is definitely a clear form of academic misconduct"* Thus, it can be said that teachers believe that if the content is entirely made by AI tools, then they do consider AI use to be a form of academic misconduct because the students do nothing except copying what was generated by these tools. If the latter is used for revision, proofreading, or assistance then it is ok to use AI for assistance.

Theme 3: Ethical Concerns, Plagiarism, Laziness, and Loss of Authenticity

According to the interviewees' answers, teachers are worried about the ethical concerns associated with students using AI tools for writing assignments. They believe that the use of AI tools leads to loss of authenticity, dishonesty, lack of creativity and confidence, and laziness. One teacher argued *"I think AI use raises ethical concerns around academic dishonesty, reduced skill development, and lack of authenticity. Most of the time, their use can lead to plagiarism, erode critical thinking, and create inequities if they are not appropriately or responsibly used."* Another teacher said: "*In case, there is an overrelaice on AI tools, then the key goal of academic writing to develop critical thinking and employ research skills, and subject mastry will be overlooked. Relying on AI only to generate content by passes this learning process, undermining the purpose of the assignment."*Therefore, the key goal of academic writing to develop critical thinking and employ research skills, and subject mastery will be overlooked. Relying on AI only to generate content bypasses this learning process, undermining the purpose of the assignment.

Theme 4: Impact of AI Tools on Writing Quality

According to the interviewees' replies, all teachers agreed they noticed changes in their students' writing quality, originality, and critical thinking skills since the introduction of AI tools. One teacher said*: "Yes. I see that students' writing is often more polished but less original. Critical thinking and depth suffer when they rely too much on AI-generated content."*Another one said: *"there is a dramatic change in students' writing products especially in solving assignments and homework.*" Another teacher answered: "*Yes, in terms of thinking and vocabulary*." In addition, according to the teachers, submitting AI-generated essays is generally an academic misconduct because it misrepresents the source of the work and defeats the purpose of learning. Transparency and adherence to institutional policies are crucial. Therefore, AI tools should support learning, not replace the intellectual effort that goes against our values in higher education research.

Theme 5: AI Tools Ethical Use

According to the interviewees, most of the teachers believe that AI can be used ethically in academic writing but with limitations. They suggested that it can be used ethically in academic writing if it is used transparently to support the learning process (e.g., for brainstorming, editing, or proofreading), and the final work of the student should reflect original ideas and understanding. One teacher said: *"Like when math students use the calculator to gain time or check results." "It can be used ethically in the initial stage of writing (generating or brainstorming ideas for enriching the work) or in the final one (for editing the final draft), but it can never be used in drafting.*Therefore, it can be said that AI can be ethically used in academic writing only as a tool to enhance learning and assist researchers, not as a substitute for original efforts for conducting anoriginal work. There are many pitfalls of using AI tools like unaccredited data when generated by AI this is why the students should rewrite and verify the data they obtain from AI tools.

Theme 6: AI ManagementStrategies

According to the interviewees, teachers use different strategies to regulate and manage the use of AI-generated content in their classrooms. Some teachers manage AI use through clear policies, redesigned assignments that require original thought, or ask students to write in the classroom without using AI tools. Other teachers manage AI use by, raising students' awareness about AI literacy education. In addition, other teachers manage AI usethrough the use of detection tools. One teacher said: *"I ask students to not use mobiles." "Students are encouraged to rely on themselves.* "Thus, it can be said that AI can be used ethically in academic writing, but only under clear conditions that prioritize original thought, proper attribution, and academic integrity for ethical AI use in academia like assisting tools for citations in APA style or grammar proofreading and generating ideas.

Theme 7: Institutional Guidelines and AI Literacy

According to the interviewees' answers, most of the teachers call for strong policies, guidelines, and strict measures that sanction the inappropriate use of AI tools to ensure ethical AI usage in academic writing. Teachers suggested that many policies could be introduced such as: oblige students to disclose AI use and allow it only for support (not full writing). Treat all misuse as misconduct. Also, we can teach ethical AI use to promote responsible learning. A teacher said: *"AI checker are good to detect AI generated work."* Therefore, it can be said that AI tools could be used for certain steps of the writing process for essays or articles or conducting research like brainstorming research questions or Improving grammar/style (like Grammarly), but not forging and fabricating raw data. AI should aid learning, not replace skill development (e.g., critical thinking, structuring arguments, and analysis of data and using learners' own words in interpretation).

The themes that were derived from teachers' interview are summarized in the Figure below. These themes include: Teachers' High Awareness of AI Use, Teachers' Views on Academic Misconduct, Ethical Concerns, Plagiarism, Laziness, and Loss of Authenticity, Impact of AI Tools on Writing Quality, AI Tools Ethical Use, AI Management Strategies, and Institutional Guidelines and AI Literacy.

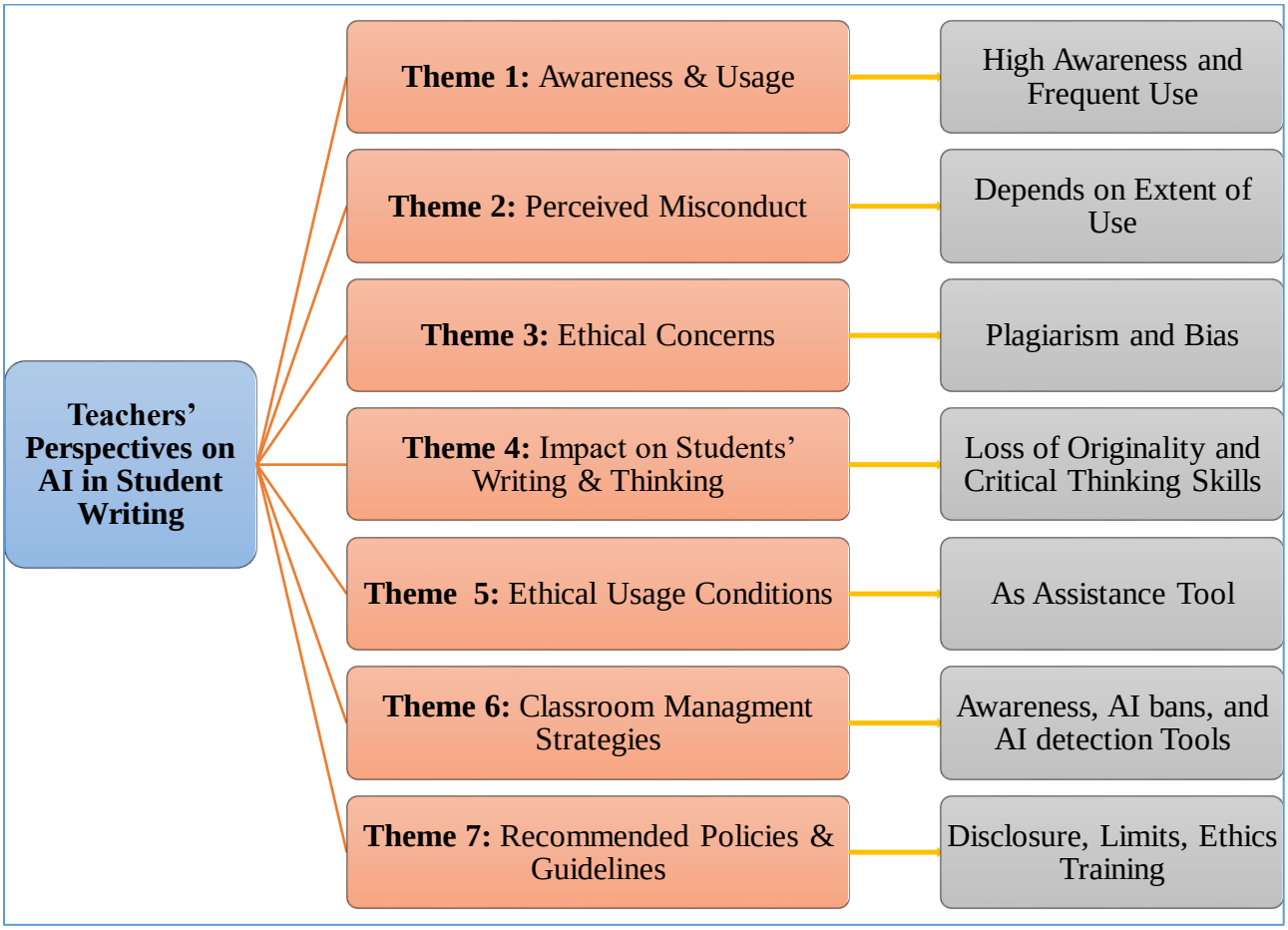

Figure 32*Thematic Map of Teachers' Perspectives on AI-Generated Content in Academic Writing***(Researchers Design)**

3.5 Students' Essays Analysis

In the current study, 18 students' essays are analyzed using Rest's Four-Component Model of Moral Behavior (1986) to investigate the ethical implications of AI generated content on essay writing. Eighteen (18) third-year students at the Department of English at Mohamed Khider University of Biskra were asked to write comparative essays about online

learning versus traditional learning. The essays are analyzed to determine whether students wrote their essays themselves or used AI tools to write them. Rest's Model of Moral Behavior is used to show how students show moral reasoning in their writings. In addition,GPTZero, a website that detects AI generated work, is used also to help the researcher determine the AI generated essays.

Table 30

Studens' Essays Analysis

Essay	AI Use	Moral Sensitivity	Moral Judgment	Moral Motivation	Moral Character
01	Yes	Not evident	Not evident	Not evident	Not evident
02	Yes	Not evident	Not evident	Not evident	Not evident
03	Yes	Not evident	Not evident	Not evident	Not evident
04	Yes	Not evident	Not evident	Not evident	Not evident
05	Yes	Not evident	Not evident	Not evident	Not evident
06	Yes	Not evident	Not evident	Not evident	Not evident
07	Yes	Not evident	Not evident	Not evident	Not evident
08	Yes	Not evident	Not evident	Not evident	Not evident
09	Yes	Not evident	Not evident	Not evident	Not evident
10	No	Evident	Evident	Evident	Evident
11	Yes	Not evident	Not evident	Not evident	Not evident
12	Yes	Not evident	Not evident	Not evident	Not evident
13	Yes	Not evident	Not evident	Not evident	Not evident
14	Yes	Not evident	Not evident	Not evident	Not evident
15	Yes	Not evident	Not evident	Not evident	Not evident
16	No	Evident	Evident	Evident	Evident
17	Yes	Not evident	Not evident	Not evident	Not evident
18	Yes	Not evident	Not evident	Not evident	Not evident

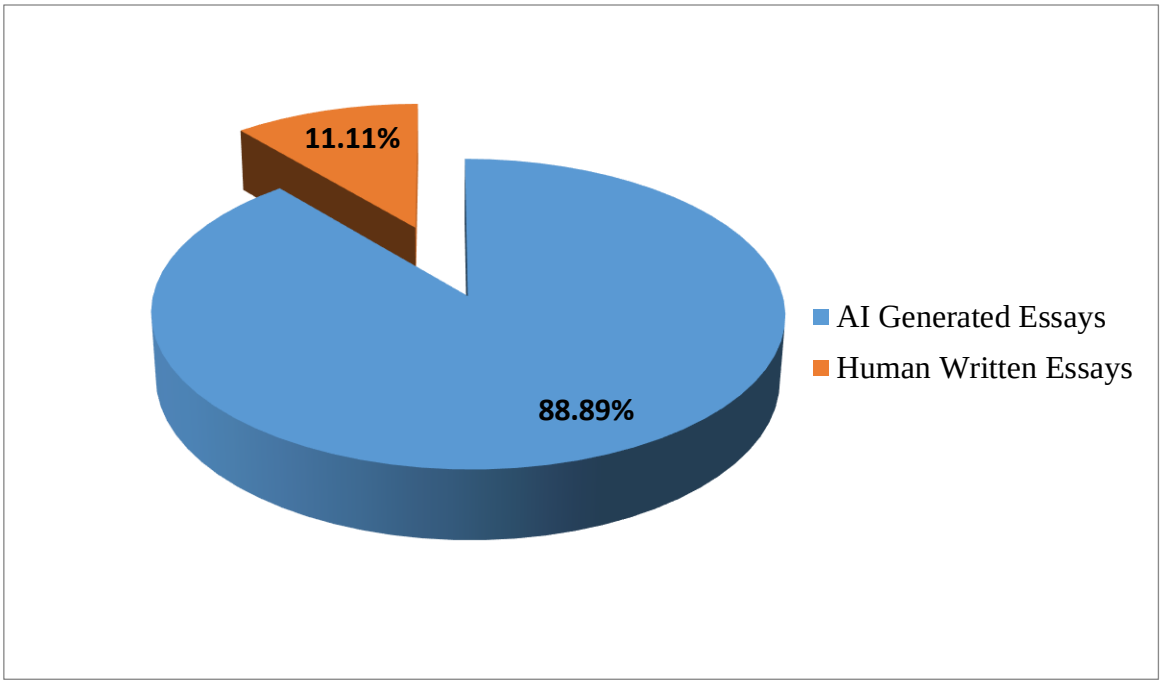

Figure 33*Studen's Essays Analysis*

According to the researcher analysis, the above Table (28) and Figure (29) show that 16 of students' essays are most probably AI-generated; in addition, the website GPTZero indicated that 16 essays are AI-generated. Moreover, it was noticed that students' essays were well structured and have a generic tone; they were free from grammar mistakes and spelling errors. The sentences of the essays are well structured with zero sentence errors. It was noticed also that the essays lack individual experiences or real-life examples. Therefore, based on Rest's Four-Component Model of Moral Behavior (1986), it can be said that students do not show any signs of awareness about moral sensitivity related to originality; in addition, students lack the moral judgment to decide that using AI tools is right or wrong. Concerning moral motivation, students chose to write their essays using AI tools, the matter that affected their honesty and ethical considerations. Concerning moral character, students' use of AI tools reflect their works' lack of originality. These findings indicate that although the majority of students (62.86% agree and 8.57%, strongly agree see Figure 21) they recognize when the use

of AI tools crosses ethical boundaries, their essays show that they do not consider the consequences of using AI unethically in their studies.

The following example of one of the students' essays show how it is clear that it was AI-generated and not human-written.

Essay Sample
Education today offers two main formats: online learning and traditional classroom learning. Each has its own advantages and challenges.
Flexibility:
Online learning is more flexible. Students can study anytime and anywhere, which is great for those with jobs or family duties. Traditional learning requires being present at specific times and places.
Interaction:
Traditional classes allow face-to-face communication with teachers and classmates, which helps with engagement. Online learning can feel less personal and may lead to less motivation for some students.
Resources:
Online learning provides digital materials like videos and e-books. However, it needs a good internet connection and basic tech skills. Traditional learning uses printed materials and live instruction, which can be better for hands-on subjects.
Cost:
Online education is often cheaper and more accessible, especially for people in remote areas. Traditional education usually costs more but offers more campus-based services and activities.
Conclusion:
Both methods are useful. Online learning is convenient and accessible, while traditional learning offers structure and direct interaction. A combination of both could be the best solution for the future of education.

From looking at the essay above, it is clear that the students wrote it using ChatGPT because there is no indentation before each paragraph and there is no example from the students' real-life situations such as talking about Moodle, distance learning, classroom...etc. Additionally, the essay has a generic tone; the student was neutral and did not express his/her opinion clearly, like exposing ideas. For example, s/he said *"each has its own advantages and challenges."* This way of expressing ideas is often used by AI tools to avoid strong arguments. In addition, in the essay, each paragraph has a predictive pattern; for example, *"Online learning is more flexible…Traditional learning requires being present at specific*

times and places. / Traditional classes allow face-to-face communication with teachers and classmates…Online learning can feel less personal. This style of writing is common in AI generated writing. Moreover, the student used a simple style with short sentences and no grammar or spelling mistakes which is not common in students' writings. The conclusion is more like a generated one because it lacks depth, and it is very well written.

The following example of one of the two students' essays who wrote their essays without using AI tools:

Essay 10

Traditional learning is the way when we can receive information from traditional environment like school and it depends on physical presence unlike online learning which you learn just behind the screen through the internet.
First, in terms of advantage, traditional way enhances belonging feeling and create setting where individuals feel accepted and valued; such feeling will help them take the learning process in useful and comfortable way. Moreover, physical presence of teacher and learner allows the latter to ask questions, and request more information in case of lack of understanding. Without forgetting the fact that it offers opportunity for social interaction and building relationships with peers.
In the other hand, online learning has too [many] positive aspects we can mention it. It is distinguished by flexibility in time and place; learning any time from any place even in the bed and choose what suits you. Furthermore, resource is not only the teacher, it has access to a vast amount of educational resources like e-books and videos, and educational forums. Last but not least, it helps develop skills of self-learning and responsibility, as the learner organize his time and tracks his progress himself.
Finally, Take the benefit of learning is more important than the way of take it. Because the main purpose is receiving education in the way that suit you.

Having a quick look at essay 10 show that the student wrote the essay without using ChatGPT like the other students did. Grammar and syntax errors the student's essay show that it is human-written; it is common for non-native speakers to make grammar mistakes and syntax errors contrary to AI tools which produce perfect pieces of writings. For example the students said: *"Traditional learning is the way when we can receive information..."*"*has too many positive aspects we can mention it"* which are awkward and unclear sentences, and AI tools do not write ungrammatical sentences. In addition, in the student's essay, the reader can

sense the emotional and personal tone of the reader; for example, “enhances belonging feeling and create setting where individuals feel accepted and valued...” is an expression which shows the writer’s personal touch which is not typical in AI generated content. Moreover, the student transitioned from one paragraph to another imperfectly; s/he is jumping between paragraphs without using smooth transitions contrary to AI tools which use smooth and clear transitions. Additionally, the structure of the essay is not consistent because they paragraphs include mixed ideas and not seem academic; for example, there is not clear topic sentence, examples, and then conclusion. The students used informal expressions and voice; “*even in the bed and choose what suits you.” The conclusion of this essay is meaningful and personal because the student tried to express his/her opinion thoughtfully; “*Take the benefit of learning is more important than the way of take it.”

3.6 Discussion of the Results

The current study used quantitative and qualitative research tools in order to answer the research questions and confirm the research hypotheses. Therefore, this section presents the results obtained from students’ questionnaire and teachers’ interview, and students’ essays analysis regarding the ethical implications of AI generated content on students’ essay writing: the case of third-year students at the Department of English at Mohamed Khider University of Biskra.

3.6.1 Discussion of Students’ Questionnaire Findings

After the analyses of the data collected through a questionnaire addressed to 35third-year students at Department of English at Mohamed Khider University of Biskra, the researcher arrived at the following results in relation to the research problem and research questions.

First, the results obtained from the students’ questionnaire revealed that the majority of students are familiar with AI tools like ChatGPT, Grammarly, and Quillbot, and they use

them frequently to write their essays. In addition, most of the students agree that AI tools can help EFL students to improve their academic writing skills, meaning that students have positive attitudes towards the use of AI tools. The results also showed that most of the students claim to be aware of the ethical concerns, yet a significant percentage of them (62.8%) are neutral, indicating some ethical literacy among third-year EFL students at Department of English at Mohamed Khider University of Biskra.

Second, the questionnaire findings showed that half of the students consider the usage of AI tools to write their essays is a form of dishonesty, yet they use these tools, showing a disconnect between what they believe and what they do. Additionally, the majority of the students agree that AI tools increase the risk of plagiarism, impact students' writing originality, and affect students' critical thinking skills. Moreover, the results showed that students agree on the wise use of AI tools such as using these tools to assist them in detecting grammar mistakes and sentence errors.

Third, a large percentage of students (80%) believe that AI tools can be helpful because they can provide corrective feedback, yet they are worried about the over-reliance on AI tools. In addition, the results showed that students agree that AI generated content do not reflect the students' real skills, but AI tools can be helpful in correcting their essays.

Finally, based on the questionnaire' findings, it can be said that the majority of students are aware of ethical concerns of using AI tools to generate essays.

3.6.2 Discussion of Teachers' Interview Findings

After the analyses of the data collected through an interview addressed to 09EFL teachers intthe Department of English at Mohamed Khider University of Biskra, the researcher arrived at the following results in relation to the research problem and research questions developed in this study.

First, the interview' findings showed that the majority of the teachers are highly aware of their students using AI tools to write their essays, especially when they give them home-works or assignments. In addition, the results revealed that teachers do not generally consider AI tools usage as unethical or a form of dishonesty if used as a supplement not a replacement. They agreed that AI tools can assist students in their writing process; for example, these tools can be used to brainstorm, edit, or correct grammar. However, teachers' consider students total dependence on AI tools in writing essays is a form of dishonesty.

Second, the results showed that teachers are concerned about many ethical issues such as plagiarism, loss of originality, reduced critical thinking skills, and laziness. They suggest that AI tools can hinder the development of higher education key components. Moreover, note that AI generated content lacks originality; thus, they expect their students to rely more on themselves. They are not totally against AI tools use, for they support the ethical use of these tools.

Third, the results showed that the teachers claimed that they use some classroom strategies to reduce the inappropriate use of AI tools such as detection of AI generated content tools. The findings also revealed that teachers generally agree on the need for comprehensive guidelines on AI usage.

Finally, based on teachers' interview results, it can be said that EFL teachers at the Department of English at Mohamed Khider University of Biskra have positive towards the positive usage of AI tools in writing essays, and they are against the unethical use of these tools. Thus, they suggest that EFL students should depend on themselves and use AI tools only for feedback and assistance and as a supplement not as a replacement.

3.6.3 Discussion of Essays Analysis Findings

After the analyses of the data collected through eighteen (18) essays of third-year students at Department of English at Mohamed Khider University of Biskra, the researcher

arrived at the following results in relation to the research problem and research questions developed in this study.

The findings of students' essays analysis through Rest's Four-Components Model of Moral Behaviour (1986) revealed that most of students used ChatGPT to write their essays. Based on the researchers' analysis and GPTZero tool, out of 18 students, only 2 students relied on themselves to write their essays. The high percentages (89%) of the students who use ChatGPT to generate essays raise concerns; this indicates that students over-rely on AI tools. In addition, the essay analysis revealed that based on Rest's Model, (89%) of the students failed to show the four-components of moral behavior because none of their essayed demonstrated ethical concerns regarding originality. Also, their use of ChatGPT reflects their lack of reasoning about what is right and what is wrong; it shows how students prefer performance over ethics; and it demonstrates how AI generated writing lacks originality which raises concerns about commitment to ethical learning.

Furthermore, the essays analysis revealed that, on the one hand, AI generated content have a generic tone, free from grammar mistakes and spelling errors, same paragraph patterns, lack of personal voice, and lack of critical thinking. On the other hand, human-written content is less structured, contains grammar mistakes and spelling errors, reflects personal voice, reflects emotional tone, and shows signs of originality and critical thinking.

Finally, it can be said that, based on students' assays analysis, there is a contradiction between what students believe and what they do because in students' questionnaire it was concluded that students are aware of the ethical use of AI tools. Yet, when analyzing their essays, it appeared that (89%) of them sued ChatGPT to write their essays. This reveals that moral reasoning in students alone is not enough, and students' need moral motivation to be able to respect the ethical boundaries.

3.6.4 Discussion of the Main Results

After analyzing and interpreting the obtained data from the three research instruments, namely students' questionnaire, teachers' interview,andstudents' essays analysis, the answers of the following researchquestions become apparent:

- *How might reliance on AI-generated content impact students' development of writing, critical thinking, and independent learning skills?*
- *How does the use of AI-generated content affect academic integrity and authenticity in writing an essay?*
- *Are EFL students aware of the ethical implications surrounding the use of AI-generated content?*

The research questions investigateAI-generated content impact students' development of writing, critical thinking, independent learning skills, academic integrity, and authenticity in writing essays. They explore third-yearEFLstudents' awareness of the ethical implications surrounding the use of AI-generated content.

Thus, students' questionnaire showed that students have positive attitude towards AI tools usage in essay writing. The agree on the benefits of AI tools in writing such as assisting them in grammar correction, spelling errors, sentence structure, and providing feedback; however, they agree that AI tools may affect students' writing originality and critical thinking skills.

In addition, students' essays analysis revealed that there is a serious ethical gap among third-year EFL students; many of them claimed to be aware of the ethical use of AI tools in essay writing, yet 89% of them use ChatGPT to write their essays instead of themselves. Moreover, teachers are aware of their students' use of AI tools and they suggest AI generated content is considered as a form of plagiarism, and it impacts the writing originality, critical thinking skills, independent learning strategies, and academic integrity.

The final results confirms the research hypothesis that suggests that i*f AI-generated content is used in essay writing, then it significantly influences ethical considerations, leading to increased plagiarism, diminished originality, and challenges in academic integrity.*

Conclusion

The results presented in this chapter were based mainly on the analyses of quantitative data, which was comprised of students' questionnaire, and qualitative data obtained from the teachers' interview and students' essay analysis. The present findings are accompanied with a list of recommendations for students, teachers, and policy makers concerning the ethical use of AI tools in essays writing.

.

General Conclusion

The current study aimed to investigate the ethical implications of AI generated content on essay writing: the case of third-year students at the Department of English at Mohamed Khider University of Biskra.The study aimed to identify potential risks to the quality of education and credibility of academic qualifications; how the use of AI-generated content may challenge or compromise academic honesty, originality, and the authenticity of student work; and evaluate how reliance on AI tools for essay writing may affect students' development of critical thinking, writing skills, and independent learning. To reach its aims, the current study used mixed methods research approach, and the research instruments that were conducted to answer the research questions consisted of students' questionnaire, teachers' interview, ad students' essays analysis.

The questionnaire was distributed to 35third-year EFL students at atMohamedKhider University of Biskra, teachers' interview was distributed to (09) teachers at the same university, and the essays were written by 18 third-yearEFLstudents. The research instruments brought about illuminating results that provided answers to the research questions. The findings of students' questionnaire revealed that third-yearstudents at the department of English at Mohamed Khider University of Biskra have positive attitudes towards the use of AI tools in essay writing, and the majority of them use these tools to assist them in detecting grammar mistakes and sentence errors. Most of the students claim to be aware of the ethical concern, and they agree that AI tools increase the risk of plagiarism, impact students' writing originality, and affect students' critical thinking skills.

Moreover, the findings obtained from teachers' interview showed that EFL teachers at the department of English at Mohamed Khider University of Biskrado not generally consider AI tools usage as unethical or a form of dishonesty if used as a supplement not a replacement.

Teachers are concerned about many ethical issues such as plagiarism, loss of originality, reduced critical thinking skills, and laziness.

Furthermore, the findings obtained from students' essays analysis show thatstudents'essays analysis through Rest's Four-Components Model of Moral Behaviour (1986) revealed that most of students used ChatGPT to write their essays. In addition, the essay analysis revealed that based on Rest's Model, (89%) of the students failed to show the four-components of moral behavior because none of their essayed demonstrated ethical concerns regarding originality. Based on the research findings, a number of recommendations for both EFL students and teachers, and policy makers are suggested.

Recommendations

Based on the data obtained from students' questionnaire, teachers' interview, and students' essays analysis, the current study suggests some recommendations for EFL students, EFL teachers, and policy makers in Algeria.

For EFL Students

- StudentsshoulduseAI tools for certain steps of the writing process for essays or articles or conducting research like brainstorming, research questions, or improving grammar/style (like Grammarly).
- They should depend on themselves to develop their academic writing skills and learn how write essays. They can also seek their teachers' feedback without referring to AI each time.
- They can use AI tools to summarise complex sources and articles (with ChatGPT), but not forging and fabricating raw data.
- Students must know that AI should aid learning, not replace skill development (e.g., critical thinking, structuring arguments, and analysis of data.

- They should never use AI tools in drafting and never rely on them completely in all the writing process. They can use them only for planning and revising, but never for drafting.
- They should know that using AI tools to write essays is a form of misconduct and dishonesty, so they should use these tools only for assistance.

For EFL Teachers

- Teachers should encourage their students to write in the classroom to ensure they are not using AI tools.
- Teachers should raise students' awareness about AI literacy education.
- Teachers can use different classroom strategies such as AI detection tools to limit the inappropriate use of AI tools
- Teachers can promote activities that help develop students' critical thinking skills; this strategy may limit AI use in essay writing.
- They should make strict measures that sanction the inappropriate use of it.
- They can oblige students to disclose AI use and allow it only for support (not full writing). Treat all misuse as misconduct. Also, we can teach ethical AI use to promote responsible learning.

For Policy Maker in Algeria

- Policy makers should provide clear educational policies and guidelines to the correct use of AI among students.
- They should define what is acceptable when using AI tools.
- They should incorporate AI ethics into the curriculum.
- They should provide students with codes of ethics that guides learners on how to use such tools.

- They should train both teachers and students on ethical use of generative AI and taking disciplinary measures against misconduct

Limitations

Although the current study reached its aims, there were unavoidable limitations and difficulties. First, time constraints, since any research is limited to a specific period, the researcher was obliged to handle both processes of data collection and data analysis within a precise period. Additionally, this study focused on investigating the ethical implications of AI-generated content on essay writing: the case of third-year students at the Department of English at Mohamed Khider University of Biskra, yet the number of participants was small. Only 35 third-year students accepted to answer the questionnaire. In addition, only 18 students accepted to write essays. Some students were unable to take part in the study because of lack of time, or they were not interested in answering the questionnaire. Moreover, it was difficult to conduct the interview with teachers because most of them do not teach written expression module, and some of them refused to answer the interview questions.

References

Abalkheel, A. (2021). *The use of AI in Saudi Arabia's educational system.*

Abd-Alrazaq, A., AlSaad, R., Alhuwail, D., Ahmed, A., Healy, P. M., Latifi, S., Aziz, S., Damseh, R., Alrazak, S. A., & Sheikh, J. (2023). Large language models in medical education: Opportunities, challenges, and future directions. *JMIR Medical Education, 9*(1), e48291. https://doi.org/10.2196/48291

Ahmet, C. (2018). *Artificial intelligence: How advanced machine learning will shape the future of our world*. Shockwave Publishing via Publish Drive.

Alkhatib, O. J. (2019). A framework for implementing higher-order thinking skills (problem-solving, critical thinking, creative thinking, and decision-making) in engineering &humanities.In*2019 Advances in Science and Engineering Technology International Conferences (ASET)*. https://doi.org/10.1109/ASET.2019.00000

Al-Shawabkah, A. A. (2017). The role of AI applications (expert systems) in making administrative decisions in general.*University Magazine on Humanities, 49*(15), 13–59.

Bostrom, N. (2006). How long before superintelligence? *Linguistic and Philosophical Investigations, 5*(1), 11–13.

Braun, V., & Clarke, V. (2006).Using thematic analysis in psychology.*Qualitative Research in Psychology, 3*(2), 77–101.https://www.researchgate.net/publication/235356393_Using_thematic_analysis_in_psychology

Brookes, A., & Grundy, P. (1998).*Beginning to write: Writing activities for elementary and intermediate learners*.Cambridge University Press.

Campesato, O. (2020). *Artificial intelligence, machine learning, and deep learning*. Stylus Publishing, LLC.

Cole, J., &Feng, J. (2015).Effective strategies for improving writing skills of elementary English language learners. Paper presented at *Chinese American Educational Research and Development*.

Connelley, J., & Forsyth, P. (2012).*Essay writing skill: Essential techniques to gain top marks*. Kogan Page.

Cope, B., & Mary, K. (2022). The cybernetics of learning.*Educational Philosophy and Theory*, 1–37. https://doi.org/10.1080/00131857.2022.2132781

Dalalah, D., &Dalalah, O. M. (2023). The false positives and false negatives of generative AI detection tools in education and academic research: The case of ChatGPT. *The International Journal of Management Education, 21*(2), 100822.https://doi.org/10.1016/j.ijme.2023.100822

Danglas, D., & Frazier, S. (2001). *Teaching by principles: An interactive approach to language pedagogy* (2nd ed.). https://www.researchgate.net/publication/264218868

De Angelis, L., Baglivo, F., Arzilli, G., Privitera, G. P., Ferragina, P., Tozzi, A. E., &Rizzo, C. (2023). ChatGPT and the rise of large language models: The new AI-driven infodemic threat in public health. *Frontiers in Public Health, 11*, 1166120.https://doi.org/10.3389/fpubh.2023.1166120

Dempere, J., Modugu, K. P., Hesham, A., &Ramasamy, L. (2023).The impact of ChatGPT on higher education.*Frontiers in Education, 8*, 1206936.https://doi.org/10.3389/feduc.2023.1206936

Dergaa, I., Chamari, K., Zmijewski, P., &Saad, H. B. (2023). From human writing to artificial intelligence generated text: Examining the prospects and potential threats of ChatGPT in academic writing. *Biology of Sport, 40*(2), 615–622. https://doi.org/10.5114/biolsport.2023.125623

Devi, K. G., Rath, M., &Linh, N. T. D. (2020).*Artificial intelligence trends for data analytics using machine learning and deep learning approaches*. CRC Press.

Duhaylungsod, A. V., & Chavez, J. V. (2023). ChatGPT and other AI users: Innovative and creative utilitarian value and mindset shift. *Journal of Namibian Studies: History, Politics, Culture, 33*, 4367–4378. https://doi.org/10.59670/jns.v33i.2791

Ersoy, E., & Baser, N. (2012). Critical thinking trends of primary education second level students. *Journal of Education and Training Research, 1*(3), 113–122.

Etzioni, A., & Oren, E. (2016).AI-assisted ethics.*Ethics and Information Technology, 18*(2), 149–156.https://doi.org/10.1007/s10676-016-9400-6

Facione, N. C., &Facione, P. A. (1996).Externalizing the critical thinking in knowledge development and clinical judgment.*Nursing Outlook, 44*(3), 129–136.

Fitria, T. N. (2021). QuillBot as an online tool: Students' alternative in paraphrasing and rewriting of English writing. *Englisia: Journal of Language, Education, and Humanities, 9*(1), 183–196. https://doi.org/10.22373/ej.v9i1.10233

Fitria, T. N. (2022). Avoiding plagiarism of students' scientific writing by using the QuillBotparaphraser.*Elsya: Journal of English Language Studies, 4*(3), 252–262.https://doi.org/10.31849/elsya.v4i3.9917

Fyfe, P. (2023). How to cheat on your final paper: Assigning AI for student writing. *AI & Society*, *38*(4), 1395–1405. https://doi.org/10.1007/s00146-022-01397-z

Ghasemi, M. (2013).An investigation into the use of cohesive devices in second language writings.*Theory and Practice in Language Studies, 3*(9), 1615–1623. https://doi.org/10.4304/tpls.3.9.1615-1623

Graham, S., &Perin, D. (2007).*Writing next: Effective strategies to improve writing of adolescents in middle and high schools*. Alliance for Excellent Education.

Grassini, S. (2023).Shaping the future of education: Exploring the potential and consequences of AI and ChatGPT in educational settings.*Education Sciences, 13*(7), 692.https://doi.org/10.3390/educsci13070692

Guo, Y., & Lee, D. (2023).Leveraging ChatGPT for enhancing critical thinking skills.*Journal of Chemical Education, 100*(12), 4876–4883.https://doi.org/10.1021/acs.jchemed.3c00505

Hartwell, P. (1985). Grammar, grammars, and the teaching of grammar.*College English, 47*(2), 105–127.http://www.jstor.org/stable/376562

Hasanah, I. N. (2017).*A cohesion and coherence on students' exposition writing* (Master's thesis, SyarifHidayatullah State Islamic University, Jakarta).

Holmes, W., Bialik, M., &Fadel, C. (2021).*Artificial intelligence in education: Promises and implications for teaching and learning*.Center for Curriculum Redesign.

Hosseini, M., David, B. R., & Holmes, K. (2023). The ethics of disclosing the use of artificial intelligence tools in writing scholarly manuscripts. *Journal of Scholarly Publishing*. https://doi.org/10.1177/17470161231180449

Hwang, S. I., Lim, J. S., Lee, R. W., Matsui, Y., Iguchi, T., Hiraki, T., &Ahn, H. (2023). Is ChatGPT a "fire of Prometheus" for non-native English-speaking researchers in academic writing? *Korean Journal of Radiology*, *24*(10), 952.https://doi.org/10.3348/kjr.2023.0773

Joshi, A. V. (2019). *Machine learning and artificial intelligence*.Springer Nature.

Kanzode, K. C. A., &Sarode, R. D. (2020).Advantages and disadvantages of artificial intelligence and machine learning: A literature review. *International Journal of Library & Information Science (IJLIS)*, *9*(1), 3.

Karsenti, T. (2019). Artificial intelligence in education: The urgent need to prepare teachers for tomorrow's schools. *Formation et Profession*, *27*(1), 105. https://doi.org/10.18162/fp.2019.a166

Kaur, D. J., & Gill, N. S. (2019). *Artificial intelligence and deep learning for decision makers: A growth hacker's guide to cutting edge technologies*. BPB Publications.

Kellogg, O. W. (2004). *How to prepare for the AP United States History*.Barron's Educational Series.

Kim, Y., Lee, M., Kim, D., & Lee, S.-J. (2023). Towards explainable AI writing assistants for non-native English speakers. *arXiv*. https://arxiv.org/abs/2304.02625

Koos, S., &Wachsmann, S. (2023).Navigating the impact of ChatGPT/GPT-4 on legal academic examinations: Challenges, opportunities, and recommendations.*MediaIuris, 6*, 255–270.https://doi.org/10.20473/mi.v6i2.45270

Kumar, R., Eaton, S. E., Mindzak, M., & Morrison, R. (2023). Academic integrity and artificial intelligence: An overview. In *Handbook of academic integrity* (pp. 1583–1596).https://doi.org/10.1053/j.semnuclmed.2023.04.008

Kurniati, E. Y., &Fithriani, R. (2022).Post-graduate students' perceptions of Quillbot utilization in English academic writing class.*Journal of English Language Teaching and Linguistics, 7*(3), 437–451.https://doi.org/10.21462/jeltl.v7i3.852

Kurzweil, R. (2017). AI will not displace humans, it's going to enhance us. *Futurism*. Retrieved June–July 2019 from https://futurism.com/ray-kurzweil-ai-displace-humans-going-enhance

Lim, W. M., Gunasekara, A., Pallant, J. L., Pallant, J. I., &Pechenkina, E. (2023). Generative AI and the future of education: Ragnarök or reformation? A paradoxical perspective from management educators.*The International Journal of Management Education, 21*(2), 100790.https://doi.org/10.1016/j.ijme.2023.100790

Luckin, R., Holmes, W., Griffiths, M., &Forcier, L. B. (2016).*Intelligence unleashed: An argument for AI in education*. Pearson Education.

Lukac, D., &Lazareva, A. (2023). Artificial intelligence and educational assessment system: Landscape, challenges and ways to tackle AI-based plagiarism. In *EDULEARN23 Proceedings*.

Mackenzie, J. (2007). *Essay writing: Teaching the basics from the ground up*. Pembroke Publishers.

Malik, A. R., Pratiwi, Y., Andajani, K., Numertayasa, I. W., Suharti, S., &Darwis, A. (2023).Exploring artificial intelligence in academic essay: Higher education students' perspective.*International Journal of Educational Research Open*, *5*, 100296.https://doi.org/10.1016/j.ijedro.2023.100296

Marzuki, U. W., Rusdin, D., Darwin, &Indrawati, I. (2023). The impact of AI writing tools on the content and organization of students' writing: EFL teachers' perspective. *Cogent Education*, *10*(2), 2236469.https://doi.org/10.1080/2331186X.2023.2236469

McCarthy, J., Minsky, M. L., Rochester, N., & Shannon, C. E. (1955).A proposal for the Dartmouth Summer Research Project on Artificial Intelligence.

McGee, P. (2021). AI and academic integrity: Challenges and opportunities. *The Chronicle of Higher Education*, *67*(2), 13–16.

McPeck, J. E. (2016). *Critical thinking and education*.Routledge.

Mehrotra, D. D. (2019). *Basics of artificial intelligence & machine learning*.Notion Press.

Mulenga, R., &Shilongo, H. (2024). Academic integrity in higher education: Understanding and addressing plagiarism. *ActaPedagogiaAsiana*, *3*(1), 30.https://doi.org/10.53623/apga.v3i1.337

Narvaez, D., & Rest, J. (1995).The four components of acting morally. In *Moral development: An introduction* (pp. 385–400). Allyn& Bacon.

Damon, W. (1977).*The social world of the child*.Jossey-Bass.

Mischel, W., &Mischel, H. (1976).A cognitive social-learning approach to morality and self-regulation.In T. Lickona (Ed.), *Moral development and behavior* (pp. 84–107).Holt, Rinehart & Winston.

Nurul, A. I., & Siti, S. D. (2021).Employing online paraphrasing tools to overcome students' difficulties in paraphrasing.*STAIRS: English Language Education Journal*, *2*(1), 52–59. https://journal.unj.ac.id/unj/index.php/stairs/article/view/21052

Pablo, J. C., Candy, &Lasaten, R. (2018).Writing difficulties and quality of academic essays of senior high school students.*Asia Pacific Journal of Multidisciplinary Research*, *6*(4), 46–57.

Pedro, F., Subosa, M., Rivas, A., &Valverde, P. (2019).*Artificial intelligence in education: Challenges and opportunities for sustainable development*.UNESCO.

Russell, S., &Norvig, P. (2010).*Artificial intelligence: A modern approach* (3rd ed.). Prentice Hall.

Rahman, A. (2020). *Teacher self-efficacy and adaptation to online teaching during COVID-19*.

UNESCO. (2021). *AI and education: Guidance for policy-makers*. https://unesdoc.unesco.org

Rahman, S. M. (2009). *Methods and applications for advancing distance education technologies: International issues and solutions*. IGI Global.

Rakhmanina, L., &Serasi, R. (2022).UtilizingQuillbot paraphraser to minimize plagiarism in students' scientific writing.*Contemporary Issues in Education, Arts and Humanities*, 26–33. http://novateurpublication.org/index.php/np/article/view/5

Robelledo, R., &Fabian, A. (2023).Exploring the benefits and the challenges of AI language tools.*The International Journal of Social Science and Humanities Invention*, *10*(1), 7569–7576.http://valleyinternational.net/index.php/theijsshi

Raune, E., Birhan, A., &Ventersque, A. (2019).ConversationalAI: Social and ethicalconsiderations. In *AICS* (pp. 104–115).

Robitaille, J., & Connelly, R. (2006).*Writer's sources: From paragraph to essay* (2nd ed.). Thomson Wadsworth.

Santiago, C. S., Jr., Embang, S. I., Conlu, M. T. N., Acanto, R. B., Lausa, S. M., Ambojia, K. W. P., et al. (2023). Utilization of writing assistance tools in research in selected higher learning institutions in the Philippines: A text mining analysis. *International Journal of Learning, Teaching and Educational Research*, *22*(11), 259–284. https://doi.org/10.26803/ijlter.22.11.14

Schraudner, M. (2013). The online teacher's assistant: Using automated correction programs to supplement learning and lesson planning. Taiwan: Asia University.

Selwyn, N. (2020). *Digital technology and the contemporary university: Degrees of digitization*. Routledge.

Selwyn, N. (2022). *Should robots replace teachers? AI and the future of education*.Polity Press.

Škavić, F. (2019).*The implementation of artificial intelligence and its future potential* (Undergraduate thesis).University of Zagreb.http://core.ac.uk

Sridhar, G. S. (2018). *Artificial intelligence: The future way of technology*. G. S. Sridhar.

Suryani, L., Syahrizal, T., &Fauziah, U. N. E. (2019). Using Orai application in teaching pronunciation.*Indonesian EFL Journal*, *5*(2), 93–102.https://journal.uniku.ac.id/index.php/IEFLJ/article/view/1835

Wang, R. (2019). Research on artificial intelligence promoting English learning change.In*Proceedings of the 3rd International Conference on Economics and Management, Education, Humanities and Social Sciences (EMEHSS 2019)*, Suzhou City, China.https://doi.org/10.2991/emehss-19.2019.79

White, R., & Arndt, V. (1991).*Process writing*. Addison Wesley Longman.

Zawacki-Richter, O., Marín, V. I., Bond, M., &Gouverneur, F. (2019).Systematic review of research on artificial intelligence applications in higher education.*International Journal of Educational Technology in Higher Education*, *16*(1), 1–27. https://doi.org/10.1186/s41239-019-0171-0

Appendix A

Appendix I: Students' Questionnaire

Dear Students,

In the context of ethical implications, the current study intends to explore the ethical implications of AI-generated content in essay writing: The case of third-year students at the department of English at Biskra University, Algeria. Thus, to learn more about your experiences and attitudes, you are kindly asked to complete the following questionnaire. Be sure that all youranswerswillremainconfidential.

- Please state your level of agreement for the following statements
- Put (x) to only ONE answer.

Strongly Agree (SA) Agree (A) Neutral (N) Disagree (D) Strongly Disagree (SD)

Section One: AI-Generated Content

Statement	SA	A	N	D	SD
1) I am familiar with AI tools such as ChatGPT, Grammarly, or QuillBot in academic writing.					
2) I frequently use AI tools to assist in writing essays.					
3) AI tools have significantly improved the quality of my academic writing.					
4) I believe AI-generated content helps in idea generation					
5) I fully understand the ethical concerns associated with using AI in essay writing.					

Section Two: Perceptions of Ethical Concerns

Statement	SA	A	N	D	SD
1) Using AI-generated content in essay writing is a form of academic dishonesty.					
2) AI-generated essays increase the risk of plagiarism.					
3) AI-generated content reduces students' originality and critical thinking skills.					
4) AI tools should not be used to generate entire essays for academic purposes.					
5) It is ethical to use AI for grammar correction and paraphrasing in academic writing.					

Section Three: AI Impacts on Students' Writing Skills

Statement	SA	A	N	D	SD
1) AI tools enhance students' writing skills by					

providing feedback and corrections.					
2) Dependence on AI for writing can result in excessive reliance and a decline in essential writing skills.					
3) AI-generated essays do not accurately reflect a student's true abilities.					
4) AI-generated content should be allowed only for specific academic purposes.					
5) AI usage in writing assignments can be beneficial if used responsibly.					

Section Four: Ethical Guidelines and Future Implications

Statement	**SA**	**A**	**N**	**D**	**SD**
1) AI-generated essays should be clearly labeled when submitted for assessment.					
2) AI should be banned in academic essay writing to ensure fairness.					
3) Universities should develop clear ethical guidelines on AI use in academic writing.					
4) Teachers should educate students on the ethical use of AI-generated content.					
5) Students should be responsible for ensuring ethical AI usage in their essays					

Section Five: Ethics Measurement (Rest's Four-Component Model of Moral Behavior (1986))

Statement	**SA**	**A**	**N**	**D**	**SD**
1) I can recognize when the use of AI tools crosses ethical boundaries in academic writing.					
2) I believe it is wrong to submit AI-generated essays as my own work.					
3) I think students should be motivated to act ethically, even when AI tools make cheating easier.					
4) I take personal responsibility for ensuring that my academic work is ethical, even when using AI.					
5) I consider the consequences of using AI unethically in my studies.					

Thank you for your time and cooperation!

Appendix B: Teachers' Interview

Prepared by: **Supervised by:**

IbtissamkhafallahDr. Yasser Ben Moussa

Investigating the ethical implication of AI generated content in essay writing

Thank you for taking the time to participate in this interview. My name is KhafallahIbtissam, and I am conducting research on "Investigating the Ethical Implication of AiGenerated content in Essay Writing." The purpose of this interview is to gain insights into theethical challenges posed by AI-generated content in essay writing, particularly in relation toacademic integrity, authorship, and the impact on students' critical thinking and learningprocesses. Your responses will be kept confidential and used solely for academic purposes.Please feel free to share your thoughts openly.

Interview Questions:

1. Are you aware of students using AI tools like ChatGPT or Grammarly in their essaywriting? If so, how often do you think it is happening?

2. Do you consider the use of AI-generated content in essays to be a form of academicmisconduct? Why or why not?

3. What ethical concerns do you associate with students using AI tools for writingassignments?

4. Have you noticed any changes in students' writing quality, originality, or criticalthinking since the introduction of AI tools?

5. Do you believe that AI can be used ethically in academic writing? If yes, under whatconditions or limitations?

6. How do you currently address or manage the use of AI-generated content in yourclassroom or institution?

7. What policies or guidelines would you recommend for ensuring ethical AI usage inacademic writing?

Thank you for your help.

الملخص

تسعى هذه الأطروحة إلى التحقيق في الآثار الأخلاقية للمحتوى الذي تم إنشاؤه بواسطة الذكاء الاصطناعي على كتابة الطلاب للمقالات: حالة طلاب السنة الثالثة في قسم اللغة الإنجليزية بجامعة محمد خيضر بسكرة. وبالتالي، اختارت الدراسة تصميم البحث باستخدام نهج الأساليب المختلطة الذي تضمن استبيانًا موجهًا إلى 35 طالبًا في السنة الثالثة ومقابلة موجهة إلى 09 مدرسين. بالإضافة إلى ذلك، تم تحليل 20 مقالًا لطلاب السنة الثالثة. تم جمع البيانات لإعطاء صورة شاملة عن تصورات مدرسي اللغة الإنجليزية كلغة أجنبية والطلاب تجاه الآثار الأخلاقية للمحتوى الذي تم إنشاؤه بواسطة الذكاء الاصطناعي على كتابة الطلاب للمقالات. أظهرت النتائج أن طلاب السنة الثالثة لديهم موقف إيجابي تجاه أدوات الذكاء الاصطناعي المستخدمة في كتابة المقالات. بالإضافة إلى ذلك، كشف تحليل مقالات الطلاب عن وجود فجوة أخلاقية خطيرة بين طلاب السنة الثالثة في اللغة الإنجليزية كلغة أجنبية، وأن معظمهم يستخدمون ChatGPT لكتابة مقالاتهم بدلاً من أنفسهم. علاوة على ذلك، أظهرت النتائج أن المعلمين على دراية باستخدام طلابهم لأدوات الذكاء الاصطناعي، وأشاروا إلى أن المحتوى المُولّد بواسطة الذكاء الاصطناعي يُعتبر شكلاً من أشكال الانتحال، ويؤثر على أصالة الكتابة، ومهارات التفكير النقدي، واستراتيجيات التعلم المستقل، والنزاهة الأكاديمية. لذلك، وبناءً على النتائج، طُرحت بعض التوصيات للطلاب والمعلمين وصانعي السياسات بشأن الآثار الأخلاقية للمحتوى المُولّد بواسطة الذكاء الاصطناعي.
الكلمات المفتاحية: مقالات الطلاب؛ المحتوى المُولّد بواسطة الذكاء الاصطناعي؛ مهارات الكتابة؛ الآثار الأخلاقية.