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**An Investigation into the Perceptions of English as a Foreign  
Language Learners toward the Effect of Artificial Intelligence  
Tools on Academic Writing:  
The Case of Master Students of English at Biskra University**

**Dissertation submitted in partial fulfilment of the requirements for Master Degree in  
Sciences of Language**

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### Dedication

I am thankful to Allah for His countless blessings. Without His help, this work would not have been possible

I dedicate this dissertation to:

To my beloved mother and the paradise of my earth that supported me and motivated me in every step I have taken. Your presence is the secret of my success. I thank you with all my heart.

The spirit of my late father, despite his absence, he is a source of inspiration. I pray that God blesses your pure soul and grants you a place in His spacious gardens

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### **Abstract**

Academic writing is a fundamental skill in higher education that demands clarity, coherence, and accuracy. With the rapid development of artificial intelligence (AI), a variety of tools has emerged to support and improve writing quality. The main aim of this study was to investigate the effect of artificial intelligence tools on the academic writing skills of EFL students, and whether these tools enhance or hinder their writing abilities, based on the learners' perceptions. In order to address the research aims, a qualitative approach was adopted alongside the design of a case study. The methodology included the use of a semi-structured questionnaire as the primary method for data collection, which was administered to a small sample size (n=30) of Master Students at the department of Language and English Literature in Biskra University. The second method was limited to interviews with teachers in order to verify the consistency of students' views with the perspectives of instructors. The results showed that students are well aware of how to use the tools selectively, and they confirm that they are only supportive tools. From the ethical side, the results indicated the students' fear of misuse, particularly in terms of plagiarism and lack of academic integrity. The perspective of the teachers was negative toward the use of artificial intelligence tools. However, they support benefiting from them under the supervision and guidance of specialists. This study concludes by recommending further research with broader and more diverse population, along with exploring modern methods and developing ethical guidelines for the proper use of artificial intelligence tools in education.

**Keywords:** Academic writing, Artificial Intelligence, EFL students, perceptions

**List of Abbreviations and Acronyms**

**EFL:** English as a Foreign Language

**AI:** Artificial Intelligence

**ELT:** English Language Teaching

**PhD:** Doctor of Philosophy

**n.d.:** No Date

**LLMs:** Large Language Models

**NLP:** Natural Language Processing

**TAM:** Technology Acceptance Model

**CoI:** Community of Inquiry

**Gen AI:** Generative Artificial Intelligence

**ASI:** Artificial Super Intelligence

**BCE:** Before Common Era

**GPT:** Generative Pre-trained Transformer

**MCQs:** Multiple Choice Questions

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# General Introduction



## **1. Introduction**

In today's rapidly changing world, students are likely to benefit from an education that prepares them for many aspects of life, such as professional success and responsible citizenship in a global community. Individuals who master reading, writing, listening, and speaking have greater opportunities in the world of technology. Reading and writing come naturally to humans, but the forms of reading and writing that are executed well by a machine are remarkably unnatural to humans. Computers can read and write with remarkable skill when we consider the expense of their performance. More often than one might expect, students at institutions of higher education have contact with writing technologies. These technologies suggest that writing is a set of discrete tasks that must be accomplished in a specific order for a draft to be generated. In contrast, writers in the professional world may use tasks within five sub processes at different times and in a variety of orders.

Artificial intelligence remains poorly understood, however, especially in its most general form that leads to thinking. With an emphasis on the use of artificial intelligence in teaching writing, the focus of this present dissertation aims to fill that gap. Specifically, there are tensions between the direct and alternative methods used in previous research on the applications of artificial intelligence in education. In our study of the potential effects of these applications in academic writing, the focus is on developing clear organization, strong arguments, and effective use of evidence.

## **2. Statement of the Problem**

In recent years, the integration of artificial intelligence (AI) technologies into educational contexts has collected significant attention, particularly concerning their potential to enhance language acquisition and writing skills among English as Foreign Language (EFL) learners. Despite the spread of AI-enhanced tools designed to assist in

academic writing such as automated style suggestion platforms, and personalized feedback systems there exists a notable deficiency in this current research that systematically investigates the effects of these technologies on EFL students' writing competencies within academic settings.

EFL students frequently encounter multifaceted challenges in academic writing, which encompass not only the acquisition of language proficiency but also the development of critical analytical skills and an understanding of genre-specific conventions. While AI tools apparently offer a means to mitigate these challenges by providing immediate support and enhancing writing quality, it remains unclear how such dependence on technology influences the writing processes, learning outcomes, and overall academic development of EFL students. Moreover, there is a lack of comprehensive studies exploring the students' perceptions of AI tools and the potential cognitive implications of their use, particularly regarding the risk of diminishing students' intrinsic motivation and autonomy in the writing process.

### **3. Research Questions**

This research seeks to answer the following research questions:

- **RQ1:** How do EFL students perceive the usefulness and effectiveness of artificial intelligence (AI) writing tools in enhancing their writing skills?
- **RQ2:** What challenges do EFL students face when integrating artificial intelligence (AI) tools into their academic writing processes?

### **4. Research Hypothesis**

Based on the above research questions, we propose the following research hypotheses:

- **RH1:** EFL students may report a positive perception of the usefulness and effectiveness of AI writing tools in enhancing their academic writing skills, leading to increased confidence and motivation in their writing tasks.
- **RH2:** EFL students may encounter specific challenges that can negatively affect their academic writing process when utilizing these technologies.

## **5. Research Aims**

### **General Aim**

This research aims to address these gaps by undertaking a thorough investigation into the effects of artificial intelligence (AI) on EFL students' academic writing. It will explore the complex interplay between the use of artificial intelligence (AI) tools and the growth of writing proficiency, critically assess the implications for learners' autonomy and skill enhancement, and contribute to the broader discourse on the integration of technology in language education. The findings of this study are expected to provide valuable insights for educators, curriculum designers, and policymakers seeking to implement artificial intelligence (AI) tools in a manner that optimally supports EFL learners in their academic endeavors.

### **Specific Objectives**

- To explore EFL students' perceptions and experiences regarding the use of artificial intelligence tools in their writing processes.
- To understand how students view the usefulness, effectiveness, and influence of artificial intelligence (AI) technologies on their confidence and motivation in writing.
- To identify the challenges and barriers EFL students face when integrating artificial intelligence into their academic writing practices.

- To investigate specific difficulties students' encounter, such as reliance on technology, issues with originality, and the capacity for critical thinking, in order to provide recommendations for more effective integration of artificial intelligence (AI) tools in educational settings.

### **6. The Research Methodology for This Study**

This study will adopt a qualitative research approach and employ an interpretivism paradigm to understand students' experiences and perceptions regarding the use of artificial intelligence (AI) in their writing process. A qualitative approach will be suitable for producing descriptive and rich data. Additionally, this study employs a qualitative case study design to investigate the effect of artificial intelligence writing tools on the academic writing skills and writing performance of EFL students.

Regarding data collection tools, it will be most appropriate to choose semi-structured questionnaire and interview, as they can yield important insights into the topic of this research. Semi-structured interview will allow EFL teachers to share their thoughts on how students use artificial intelligence writing tools, how effective they are, and any problems students face. A semi-structured questionnaire will be given to EFL students, which will include mix of questions such as open-ended questions, multiple choices and Likert scale items to gather students' opinions on the usefulness and challenges of artificial intelligence tools in writing.

The data collected from Interview and questionnaire will be transcribed and analyzed using descriptive and thematic analysis. This process involves coding the data to identify recurring themes and patterns related to students' experiences with artificial intelligence (AI) writing tools.

The target population for this study will be Master One students in the English department at Biskra University because they are assumed to have an advanced level of

English, which will serve the purpose of this research study. These students will be selected based on a purposive sampling technique, which involves selecting participants who have specific characteristics relevant to the research questions. This technique ensures fair selection and makes the sample a correct representation of the group.

### **7. Significance of the Study**

This study aims to provide valuable insights into the effectiveness of artificial intelligence (AI) tools in improving EFL learners' academic writing by assessing changes in writing quality and proficiency. It addresses key challenges like grammar, coherence, and cultural differences, exploring how AI can help overcome these barriers. The research provides practical insights for educators and curriculum developers by offering evidence-based recommendations for integrating artificial intelligence (AI) tools into EFL programs. Additionally, it investigates students' perceptions of artificial intelligence (AI) writing tools, their impact on engagement, and the risk of over-reliance. The findings will contribute to language learning research, inform policy discussions, and support best practices in artificial intelligence (AI) assisted language education.

### **8. Structure of the Dissertation**

This dissertation will be divided into two parts: One is Theoretical and the other is Practical. The Theoretical Part will consist of three chapters that will be devoted to the related literature review. While the latter includes only one chapter that deals with the fieldwork, data analysis, and the relevant final conclusion.

#### **Chapter One**

This chapter explores the nature, definition, types, and characteristics of academic writing. It discusses academic writing genres such as essays, research papers, theses, and dissertations. Additionally, it examines academic writing processes (pre-writing, drafting, revising, etc.), approaches (process, product, and genre), and AI assistant academic writing.

## **Chapter Two**

This chapter provides an overview of AI, including its history, definitions, and types. It examines AI tools such as Writfull, Scispace, and ChatGPT, their applications in education, and their impact on language learning and academic writing. The chapter also discusses students' motivations and perceptions, as well as the benefits, limitations, and challenges of AI tools in academic writing.

## **Chapter Three**

This chapter outlines the research methodology, including research paradigms, approaches, and data collection methods (questionnaire and interviews). It details the sampling techniques, validation, piloting process, and data analysis procedures.

## **Chapter Four**

This chapter present the results that were collected from the data collection methods, seeks to displays, describes, and interprets the qualitative data findings by discusses their relevance with the research questions and aims. In an attempt answer the research questions, as well as to make inferences and draw conclusions.

# Chapter One

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## **Introduction**

For many, writing seems to be a very difficult and challenging skill, whether in academic settings or the professional field. Since writing is a relatively important skill compared to the other skills in academia, it has become essential in education. Also it is a means of documenting ideas, information, and feelings permanently, writing has introduced another dimension by enabling the accurate and clear transfer of ideas (Fareed et al., 2016). Learning to write is a complex skill that requires continuous language practice, therefore, scholars and educators are working to develop strategies and technologies that will help individuals improve their writing. This chapter will shed light on the nature of writing and provides a set definition about writing, and then it will discuss the main types. Following this, it will provide with various definitions of academic writing, genre, characteristics, types, and discuss the academic writing process and the approaches. At last, this chapter will be concluded by discussing artificial intelligence tools in academic writing.

### **1.1 Nature of Writing**

Writing is a skill that every language learner must acquire, and it cannot be ignored. It is a productive process that allows students to express their thoughts, ideas, opinions, feelings through well-structured written text. Crafting quality writing demands both creativity and knowledge. Many students considered writing to be the most complex skill by English as a Foreign Language (EFL) compared to others; some researchers argue that writing is one of the most important communication systems ever invented by humans.

Coulmas (1989) defined writing is “the single most important sign system ever invented on our planet” (Meletis, 2020, p.1). He emphasized that writing is not a visual representation of language but an independent system with its own function.

Additionally, the academic field relies heavily on writing for knowledge spread, and widely uses it in various scientific documents. In the field of linguistics, writing is considered one of the primary tools for documenting and analyzing data. As well as, with the advancement of technology and the emergence of modern and innovative means, the importance of writing has increased, making it an essential element of our daily life.

### **1.2 Definition of Writing**

Over the decades, several scholars and researchers have defined writing in various ways. Some of them see it as a means of communication, while others view it as a tool to express themselves. According to Tarigan (1994) stated that writing is a way of communication where people express their thoughts without directly speaking. Writing, as explained by Nunan (2003), is a physical and mental activity employed by people to express ideas to accomplish an effect (Faisal & Suwandita, 2013). Grabe and Kaplan (1996) added that people write for different reasons, from note-taking skills, which is the simplest, to complex activities such as writing letters; hence, there is no single definition of writing.

Also, Neman (1995) argued that writing can be learned and improved and he provides the following definition: writing is "a craft, an artistic process with techniques and conventions that can be learned, employing skills that can be improved" (Abdullayeva & Mamadaliyeva, 2022, p.3736). Meanwhile, Wallace, Stariha and Walberg (2004) indicated that the whole writing process consists of note-taking, planning, drafting and editing; thus, this entire procedure may not be learnt easily by learners all at once. Likewise, Zemach and Rumisek (2005) noted that even though writing is one of the major means of communication in academics as well as life, it continues to be among the most difficult language skills to learn.

Furthermore, Pulverness and Williams (2005) also clarified that writing is to send messages by using symbols, which presupposes a message and an audience. This corroborates the fact that writing is not just putting words on paper but is a guided process that allows clarity and effectiveness. Thus, mastering writing not only facilitates communication but also brings clarity and significance to what one wants to express.

### **1.3 Types of Writing**

When discussing types of writing four main types can be identified: expository, descriptive, narrative, and persuasive. This style of writing reflects their personality, distinct voice, and way of engaging with audience and readers. According to Pfeifer (2024), although every author has a different style, there are generally four main purposes that writing can serve. However, these four purposes are known as the four types of writing, and understanding them is very important for any writer.

#### **1.3.1 Expository Writing**

The most common type of writing is the expository writing, expository writing is a category of writing that elucidates, clarifies, or investigates an idea, rationale, or sequence of steps to enlighten or inform the reader about a specific subject, it does not include the author's opinions, focuses on accepted facts about a topic, including statistics or other evidence. Additionally, the goal of this style is to explain a concept, conveying information from the writer to wider audience. It is usually in logical order and sequence. As examples: textbook, news stories, articles, business, technical, or scientific writing (Goel, Sharma, & Singh, 2016).

#### **1.3.2 Descriptive Writing**

The main purpose of descriptive writing, as stated by McCarthy (1998), is to describe and focus on communicating the details of characters. Descriptive writing is that domain of writing that develops images through the use of precise sensory words and

phrases and through devices such as metaphor and the sound of words. This type of writing describes places, people, events, situations, or locations in a highly-detailed manner. It is often poetic in nature, using sensory details and literary devices such as metaphors. The author aims to visualize what s/he sees, hears, tastes, smells, and feels. For instance, include poetry, journal, and description of nature, fictions novels or plays (McCarthy, 1998).

### **1.3.3 Narrative Writing**

This type of writing is used in almost all longer piece of writing, whether fiction or nonfiction. The essential purpose is to tell a story with characters, conflict, and settings. Examples can include: novels and novellas, short stories, and oral history. In addition, this type of writing involves several important key elements such as a narrator telling a story or events, and a definite and logical beginning, middle, and end. It often contains situations like actions, motivational events, and disputes or conflicts with their eventual solutions (Goel, Sharma, & Singh, 2016).

### **1.3.4 Persuasive Writing**

Persuasive writing aims to convince others to adopt the author's point of view of through justifications, reasons, and arguments. Unlike expository writing, persuasive writing includes the biases and opinions of the writer, with the main purpose being to convince reader. Examples of persuasive writing can be seen in complaints, advertisements, cover letters, and opinion columns in newspapers. The author stated their position and requests the reader's agreement to a point of view, often issuing a call-to-action for the audience to take action or react to the situation. Examples include reviews, letters of recommendation, and sales pitches (Goel, Sharma, & Singh, 2016).

### 1.4 Definition of Academic Writing

Academic writing is a challenging skill, especially for university students, as it plays a key role in evaluating their academic performance. According to Murray (2005), academic writing is defined as the conventions found in theses and published papers within a discipline, which becomes clearer when examples from target journals are examined. Additionally, According to Irvin (2010), “Academic writing is always a form of evaluation that asks you to demonstrate knowledge and show proficiency with certain disciplinary skills in thinking, interpreting, and presenting” (Poudel, 2018, p.1).

In regards, Chou's (2011) study on student perceptions of academic writing, it was found students' perceive academic writing as significant because it enables them to publish their work and communicate with the outside world.

Mastering academic writing is a crucial step toward achieving success in various professions. To enhance their academic writing skills, learners should familiarize themselves with its key features and dedicate more effort and practice (Swales & Feak, 2012). Furthermore, academic writing is a formal comprehensible written expression of one's own evidence-based perspectives (University of Leeds, 2019) on a given topic, question or subject (Gabi, 2022).

According to, Khalifa and Albadawy (2024) defined academic writing as a key aspect of research and education, involving a structured method of expressing ideas. It is commonly used by researchers and educators in scholarly works to present data-driven arguments and logical reasoning. In addition, mastering of formal tone and specific terminology of academic writing can be difficult, especially for beginners. Maintaining of academic writing integrity through paper referencing and citing of sources is crucial, but it can be time-consuming and challenging, particularly for those who are not native English speakers.

### 1.5 Academic writing genre

There are several genres of academic writing and many of scholars presented some of them in their works. The word 'genre' refers to category or type of thing. Each genre has its own style and purpose. As mentioned before, these genres can be grouped into basic categories such as essays, research paper, thesis and dissertations (Amrate, 2019). These are not the only common academic writing genres; there are many others, but here only four are provided in the following table:

**Table 1.1**

*Academic Writing Genre based on Amrate (2019).*

Genre	Definition and Purpose
<b>Essay</b>	<p>It is a piece of writing that contains several paragraphs about one topic and presents an argument is known as argumentative writing. It has many types and is very common in academic setting. It follows a structured format, including an introduction, body, and conclusion, with a clear organization of content.</p> <p>The objective of the essay is to describe or summarize a topic, or to express and present an idea. Moreover, it aims to provide a range of arguments, evidence and reasons in response to the topic question, helping to develop critical thinking.</p>
<b>Research paper</b>	<p>Research paper is significant piece of academic writing generally performed as a requirement for a class. Gibaldi (2009) stated "A research paper is a form of written communication. Like other kinds of nonfiction writing-letters, memos, reports, essays, articles, .books-it should present information and ideas clearly and effectively" (p. 5). A research paper provides a way for the growth of knowledge. Scientists use their papers to share their findings with the rest of world.</p> <p>The main aim of research paper is to investigate a specific question, and determine information about a topic that is, take position on that topic, to manage research, and provide support or evidence for that position in an organized report.</p>

<b>Thesis</b>	<p>A thesis is an idea or theory that is conveyed as a statement and is debated in a logical way. In particular, it is an essential for higher-level degree programs and is a preliminary requirement for achieving a degree and graduating. Abroad, a thesis is usually referred to a doctoral degree or PhD, also known as a “dissertation”. It is along piece of writing on a particular subject, and it presents the main idea, opinion, or theory of a person, group, and speech.</p> <p>The purpose of the thesis to contribute new insights, opinion, perspectives based on present knowledge. It also demonstrates the capability to perform independent investigation.</p>
<b>Dissertation</b>	<p>The dissertation is documented, specifically, to get a university degree or diploma. It is regarded long essay on a particular subject. Therefore, researcher of the dissertation has to take responsibility for studying the research field and produce a literature review. Moreover, choosing a method for conduct a study, write up findings and discuss the outcomes in a discussion section. In other words, dissertation is simply a document presented for an academic degree or professional qualification.</p> <p>The goal of the dissertation is to contribute something new and original to the academic knowledge, to demonstrate highly developed research skills and critical thinking. It also seeks to provide a framework for future research and scholarly publication.</p>

To wrap up, each program and university has its own instructions for what a thesis and dissertation should contain. Despite their differences, they generally have the same basic form, outline, structure, rules and purposes.

### 1.6 Characteristics of Academic Writing

Academic writing is different from other types of writing because it is clear and precise, making it easier to understand and evaluate. In addition, it differs in its characteristics. Many scholars and researchers have identified various features of academic writing. The following figure presents some of these characteristics.



**Figure1.1**

*Some Characteristic of Academic Writing, adapted from Academic Writing and Publishing: A Practical Handbook* (p. 4), by J. Hartley, 2008, Routledge. © 2008 by Routledge.

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Academic writing is:

- unnecessarily complicated
- pompous, long-winded, technical
- impersonal, authoritative, humourless
- elitist, and excludes outsiders.

But it can be:

- appropriate in specific circumstances
  - easier for non-native speakers to follow.
- 
- 

Hartley (2008), in Figure 1, presents some characteristics of academic writing and believes that academic writing is easier and more appropriate for non-native speakers.

**1.6.1. Coherence and Cohesion**

Cohesion and coherence have significant role in the interpretation of message. According to Halliday and Hasan (1976), “Cohesion refers to the relations of meaning that exist within the text, and is expressed through the structured organization of the text... It occurs where the interpretation of some elements in the text is dependent on that of another” (p.4). According to Yule (2008) ‘Cohesion is the tie and connection that exist within the text’. It is the part of the language system, representing a type of intra-sentence relationship between an item and either the previous or following items in the text (Poudel, 2018, p.4). In communication process, cohesion provides insight into how the writer structures and conveys their message. Halliday and Hasan (1976) argued that cohesion is expressed through both grammar and vocabulary in the text. Therefore, there are two types

of cohesion: grammatical cohesion, and lexical cohesion. A text is formed not only by the structured string of words, but also by the contextual relationship between sentences.

According to Taboada (2004) “coherence is the hanging together of the text with relation to its context of situation or culture” (Poudel, 2018, p.5). Coherence is the result of the explanation of interpreting the meaning of the text, and it is based on the relation between the audience and the text (Tanskanen, 2006). It is asserted that although coherence without cohesion may be possible, it is quite unusual to find a coherent text with no cohesive links in real language use. As Tanskanen (2006) says, cohesion and coherence are independent, but they are linked in such a way as to create more comprehensible texts. Both cohesion and coherence contribute to the continuity and unity of paragraphs in academic writing. It is coherence the contextual appropriateness of the sentences- that is more significant for making sense of the text for the readers. However, a text with both cohesive connections and coherence is easier for readers to comprehend and interpret the message of the writer (Poudel, 2018). To achieve coherence and cohesion students should ask themselves some questions such as:

- Are my ideas interconnected?
- Do my arguments convey the intended meaning?

Asking questions like these can be beneficial for ensuring the unity and comprehension of the text.

### **1.6.2. Cautious and Formal Writing**

A crucial characteristic of English academic written discourse is a cautious style of writing, which involves avoiding overly definite statements or conclusions. According to (Yakhontova, 2003), the purpose of such a plan is to be exact and to protect the author from being criticized for possible errors or inaccurate claims. Cautious writing also permits

for other opinions or points of view the main linguistic strategies of doing this are as follow:

- Using modal verbs.
- Using adverbs that express certainty and probability.
- Using verb phrases that space the writer from the statements or conclusions makes.
- Using statements of shared knowledge, assumptions, and beliefs.

Academic writing is formal, which means that idiomatic and colloquial expressions should be avoided. Cautious writing involves avoiding judgments and being less direct by using hedging verbs and expressions. Jordan (1999) asserted that academic writing, “is formal in an impersonal or objective style (often using impersonal pronouns and phrases...), cautious language is frequently used in reporting research and making claims; vocabulary appropriate for particular academic contexts is used” (p.88). In other words, some technical words and formal expressions should be contained and some should not (Yakhontova, 2003)

### **1.6.3. Audience and Purpose**

When introducing a piece of academic writing, the writer should take into account the audience who share the same field of interest or who can understand the content being presented. According to Terry berry (2005) knowing the audience is the key to success, using appropriate language, language written on the same mental and emotional level as of the audience's. So writers must analyze the needs and beliefs of the audience before writing. Therefore, knowing the audience's issues helps the writer to write understandable information as a source of learning in order to communicate.

Each type of academic writing has a specific purpose. Before starting to write, students are expected to understand and identify their objectives throughout their academic journey. Swales and Feak (1994) asserted that graduate students' primary purpose in

academic writing is usually to demonstrate their knowledge, experience, and intelligence. All academic writings have a purpose before they are formed. The writer should understand what he wants to achieve either to tell or to persuade the reader, and can determine the writing approaches as well as the practical tasks to be conducted (Pak-tao Ng, 2003).

According to Whitaker (2009) “the most common purposes in academic writing are to persuade, analyze, and inform” (p.2). Therefore, the purpose of any piece of academic writing has to be determined and clarified right from the beginning (Seddiki & Tedjani, 2022).

Academic writing has specific audience, McGarrell and Brillinger (2008) pointed out that students should take the audience into consideration where their writing should match the audience expectation. In other words, students need to find out what is known about the subject and what they want from the audience to understand (Seddiki & Tedjani, 2022).

#### **1.6.4. Language and Style**

According to Yakhontova (2003), the style of English academic writing is formal. Its main characteristics are the lack of informal features and the use of a suitable academic vocabulary. Developing a mastery of formal style is very essential for non-native speakers wishing to master the standards of English academic discourse. Style in writing means the way or the unique patterns the author write uses in a written form for their readers. Within an academic writing context, style plays a crucial role. Language is essential for effective communication as it consists of elements such as vocabulary, grammar, and syntax, which together form sentence and convey meanings.

In academic writing, it is important not only to use formal language but also to write with precision. Since academic writing has its own specific audience and purpose,

the language used should meet academic standards. Therefore, Blanpain (2006) maintained that students should be aware of the sentences' structure and the specific terminology that is used in real English context to avoid using unnatural and translated language. According to Swales and Feak (1994), Jordan (1999), Yakhontova (2003) and Gillett et al., (2009) the main characteristics of writing style are as follows: formal style, cautious language, academic vocabulary, grammar and mechanics.

To conclude, several language aspects are essential for effective academic writing. These include grammar, vocabulary, mechanisms and organization. Additionally, certain elements of academic style must be adhered to. Like avoiding personal pronouns, contradictions, and personal adverbs.

### **1.7 Types of Academic Writing**

There are four main types in academic writing which are: descriptive, analytical, persuasive, and critical. Each has a distinct purpose and language features. In many academic texts more than one type may be used.

#### **1.7.1 Descriptive academic writing**

It is the simplest type of academic writing. It is used to provide facts or information. Assignments that are purely descriptive include reports, records, summaries, and definitions The Learning Hub (n.d.).

#### **1.7.2 Analytical Academic Writing**

It is used to interpret data is and not widely utilized in universities. Analytical writing also requires to reorganizing facts and information into categories, groups, parts, or types. The instruction for this type includes analyzing, comparing, contrasting, and examining. To make your writing more analytical, these steps should be followed: Plan carefully by brainstorming ideas and organizing them into groups using colors, charts, or tables; naming the identified categories; structuring each sections and paragraph around

these categories; and using clear topic sentence and a strong introduction to make the paper easy to follow. The Learning Hub (n.d.).

### **1.7.3 Persuasive Academic Writing**

According to The Learning Hub (n.d.), persuasive writing shares many elements with analytical writing, but it also introduces an additional features: the point of view. In academic writing, this feature often involves presenting arguments, offering recommendations, interpreting findings or evaluating the other works. In this type of writing, each statement made needs to be supported; the instructions assignments typically include tasks such as arguing, evaluating, discussing, and taking a position. To effectively present a point of view, guidelines should be followed, such as reading viewpoints of other researcher on the topic, searching for a pattern in references, organizing multiple interpretations, and discussing ideas and facts with others.

### **1.7.4 Critical Academic Writing**

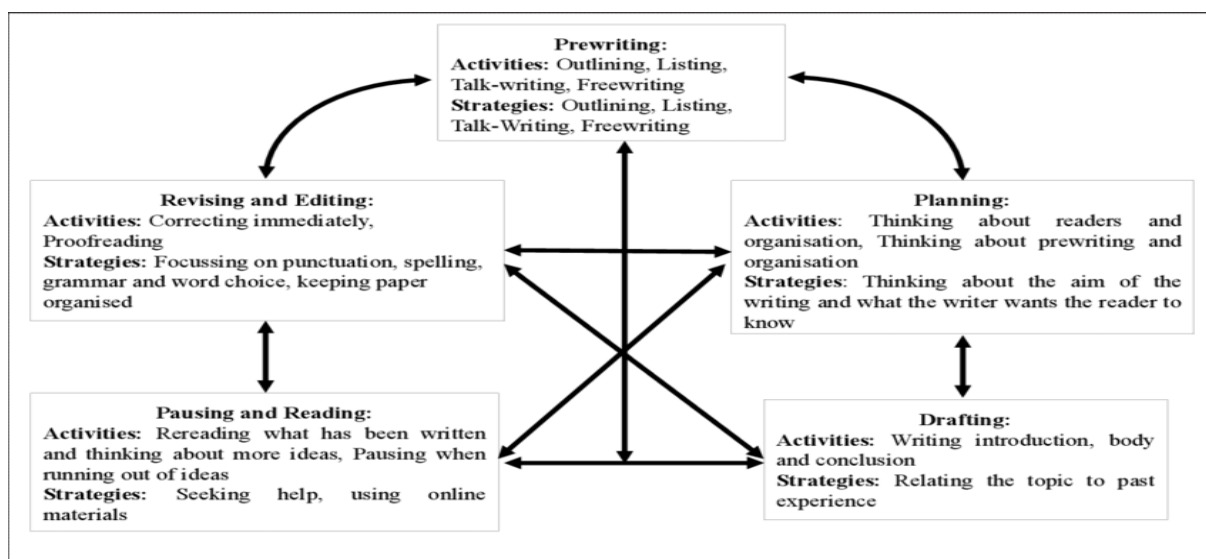
Critical writing is commonly used in research. It includes all the features of persuasive writing, with the additional requirements of presenting a point of view on a topic or issue. This type of writing requires considering at least two viewpoints, including the writer's opinion. Assignments of this type include a critique of a journal articles or a literature review. The instructions for critical writing often include terms like critique, debate, disagree, and evaluate. Strong writing skills are essential for this type of writing (The Learning Hub, n.d.).

## **1.8 Academic Writing Processes**

Richards and miller (2005) stated that writing process is a patrol interfering operation, where the writer can revert to previous phases or progress to the next one at any time or s/he can mix different methods at once. Academic writing is involved in most assessment tasks at university. To become a proficient writer in academic settings, it is

important that the academic writing process is mastered. On the other hand, the writing process is composed of a set of steps that are followed to guide the act of writing. Many researchers like Tribble (1996), Harmer (2004), Richards and Miller (2005) and Nazario et al., (2010), emphasized that writing is a recursive process rather than a linear activity, where the writer is moving backwards and forwards in a wheel form until reaching his/her final purpose. Thus, writing process consists of four to five main interrelated cyclical stages that differ in their names from one researcher to another.

These stages are: prewriting (planning/inventing), drafting, revising (reviewing), and editing and sometimes publishing. Harmer (2004) emphasized the above mentioned ideas and explains that writing at first was presented as a linear process. This linear concept was refuted and a new approach was adopted called recursive-nonlinear process. The writer cannot only plan, draft and edit but also he can re-plan re-draft and re-edit. This process is composed of five main and basic stages. Each stage of the writing process is essential, as they are all interconnected. To produce effective academic writing, the recommended steps should be carefully followed to ensure the development of a coherent and well-organized text. These stages can help a specific objective to be reached and, consequently, allow writing techniques and strategies to be improved.

**Figure 1.2***The Academic Writing Process* (Richards and Renandya, 2002)

### 1.8.1 Prewriting

This is the first initial stage of the writing process, allowing the writer to explore their first thoughts about a topic, without worrying about structure or organization, during this phase, the writer gathers and generates ideas. The writer figures out, brainstorm, and decides a topic to write about. They begin researching and collecting relevant information, ideas, and facts by reviewing literature, asking questions, and outlining their thoughts. While also taking into account the intended audience and purpose of the writing. According to Williams (2003) ‘students involved in writing need to engage in the activities contained in the various stages of the process approach: namely, pre-writing activities such as brainstorming, collecting ideas, discussing; the drafting stage, and the revising and editing stages’ (Dhanya & Alamelu, 2020, p.6765).

Dhanya and Alamelu, (2020), prewriting is considered a crucial phase in the writing process. It encompasses all the preparatory steps taken before the actual drafting begins. During this phase, activities such as brainstorming ideas, planning, organizing, and



selecting relevant points are typically carried out. Some of the popular prewriting activities are:

- Brain storming
- Clustering/Mind mapping
- Outlining/Listing
- Journaling/Questioning
- Free Writing

Most of the above activities are versatile in nature and can be applied from primary to graduate schools with equal effectiveness

### **1.8.2 Drafting**

Oshima and Hogue (2007), mentioned that when the writer drafts, does not have to consider on grammar, spelling or punctuate only getting the ideas down on paper. During this stage of the writing process, ideas are explained, supported, and expanded. Several steps are involved in this phase, including the development of ideas and thoughts in written form, the organization of planning notes, the arrangement of ideas into paragraphs, and the composition of the first draft. (Hukom & Huninhatu, 2023)

### **1.8.3 Revising**

Revising is at the heart of the writing process, as emphasized by Johnson (2024). At this stage, the content and organization are revised, reshaped, and reviewed multiple times. Certain parts may be added, others omitted, or deleted entirely. For instance, the initial draft of this chapter was significantly revised to improve clarity and coherence. According to Nazario et al. (2010), revising is described as the act of seeing the draft again for the purpose of making it clearer, more engaging, more meaningful, more informative, or more convincing. Grenville (2001) mentioned that this stage involves two main steps identifying problem and correcting them. These operations are directed toward reading deeply and

critically, correcting lexical, grammatical, and syntactical errors, and making revisions even at the level of the content itself.

#### **1.8.4 Editing**

It is the stage in the writing process where the text is edited to correct errors precisely and appropriately and to ensure that all aspects previously revised (e.g., structure and content) are addressed before the final draft is prepared for publication. Johnson (2008) defined editing as follows: Basically 'editing' means making your piece as reader-friendly as possible by making the sentences flow in a clear, easy-to read way. In addition, many researchers Richards and Renandya (2002), Sundem (2006) and Johnson (2008) present different editing items that can help students to polish their final draft. Writers should keep in mind the following items when editing aspects to check:

- Punctuation
- Capitalization
- Tenses
- Pronouns
- Spellings
- Indentation
- Paragraphs

Questions to Consider:

1. Have you used periods at the end of sentences?
2. Have you written complete sentences?
3. Have you used a correct preposition?
4. Have you used the right documentation style?

### **1.8.5 Publishing**

William (2020) defined publishing as “Sharing your finished text with its intended audience” (p.107). Publishing is not limited to getting a text printed in a journal. It includes turning a paper in to a teacher, a boss, or an agency.

The last stage of the writing process is considered to be proofreading, which occurs before publication. Smith (2003) described proofreading as “simply careful reading. As every word, sentence, and paragraph is reviewed, errors are discovered. “Once they are pinpointed, proofreading symbols can be used to abbreviate the time taken for editing” (p.15). The proofreading phase follows the principle of primarily enabling authors to identify and rectify various errors in order to produce a satisfactory piece of writing. According to Bailey (2003, p.60), "proof reading is a crucial final step, which can avoid confusion or misunderstanding because of simple mistakes. Proofreading is done after editing. It assists the writer in identifying mistakes before submitting the composition. George (2023) stated that the majority of the techniques that can help the students to score well in proofreading and prevent the different errors are presented as follows:

- Read aloud each word and sentence as this will help you to catch errors that your eye cannot see.
- Allow ample time for close reading of the text, with breaks in between to provide you with a fresh view of your essay.
- Allow friends to read your writing to check if there are any errors, as an outside perspective may help identify mistakes that the writer might overlook.

## **1.9 Academic Writing Approaches**

Between the 1940s and 1960s, writing was considered an unimportant skill in teaching foreign languages. It was seen only as a tool for learning or reinforcement. However, from the late 1960s to the early 1990s, many scholars proposed different methods for teaching writing. Before this time, writing was neglected because speaking

was viewed as the most important and appropriate form of language use. Additionally, In the 1990s, academic writing became a key focus in language teaching and learning. Writing was no longer just a way to review what students had learned but also an important tool for gaining direct experience in different stages of writing (Weigle, 2002). Jordan (1997) explained that academic writing is a broad term that includes various approaches. Between the 1940s and 1960s, a new style called guided writing emerged, where students wrote based on specific models (as cited in Jordan, 1997). In the 1960s, a new approach called the rhetorical-functional approach gained attention. Jordan noted that all writing methods before the 1990s can be classified under what is known as the product approach.

These proposed approaches help writers overcome difficulties, motivating them to improve their learning of English as a foreign language. Rivers (1968), (as cited in Nimoshi 2008), stated that no single approach can be considered the best. Each approach is successful in some contexts but may not be effective in others.

### **1.9.1 The Product Approach**

Writing is seen by Pincas (1982a) as being primarily about linguistic knowledge, with attention focused on the appropriate use of vocabulary, syntax, and cohesive devices. According to (Pincas 1982b), this approach has four main stages, and which are familiarization, controlled writing, guided writing, and free writing. It relies on the final production process writing and modifying features individually. According to Nunan (1989), the product approach focuses only on the final outcome of composition and so on. S/he emphasizes ensuring that the final product is readable and free of defects and errors, such as grammar and syntax. It follows supportive discourse rules, and here, teachers should focus mainly on the language system.

Regarding Harmer (2004), he stated that teachers do not give importance to other stages of writing in the classroom. This approach has been criticized concerning creativity,

as it does not allow learners to express their ideas freely but keeps them constantly directed by teachers. This leads to a loss of enthusiasm and their ability to be creative in expressing themselves (Tuffs, 1993).

### **1.9.2 The Process Approach**

In teaching writing, the process approach is applied, which primarily emphasizes the writing process through which students continuously produce their written products. While the first approach focuses more on the writing tasks, in this approach, learners are permitted to create or recreate a piece of writing including some key stages of writing such as prewriting techniques includes brainstorming, outlining, and organizing ideas before the actual writing begins. After this, drafting process is where writers translate their outlines into a full draft, focusing on getting ideas down without carrying about excellence.

In addition, the next stage is revising strategies, which involve reviewing and refining the draft to improve clarity, coherence, and the strength of the argument. It also focuses on editing techniques that emphasize correcting grammar, punctuation, and structural errors in the written work. (Tribble, 1996). These steps are important in academic writing. Therefore, this process helps students determine the appropriate methods for their specific learning styles and gives them the opportunity to think about what they will write. It also improves writing skills and enhances their learning environment (Sunardi et al., 2023). Additionally, it helps achieve writing tasks (Abdullah et al., 2020). This systematic approach not only improves the writing process but also contributes to achieving total effectiveness in academic writing.

### **1.9.3 The Genre Approach**

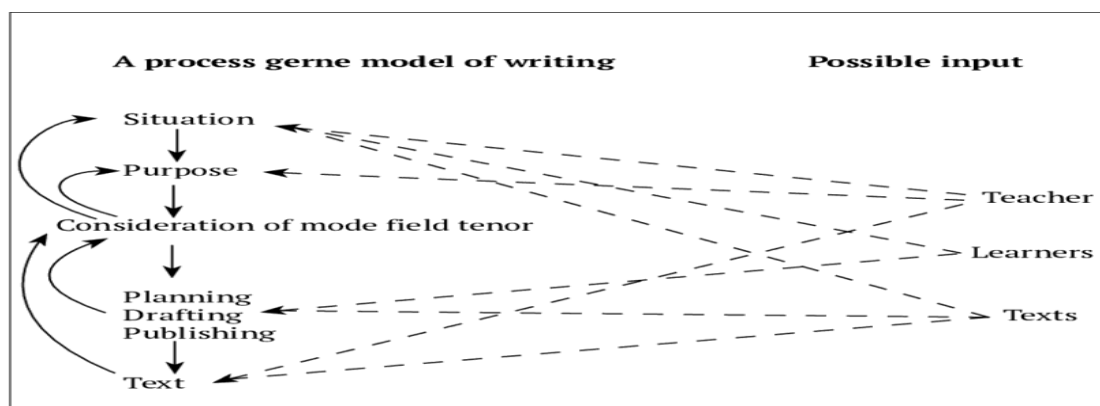
In English Language Teaching (ELT), the genre approach is a relatively new development. However, it shares certain similarities with the product approach. According to genre analysts, the purpose of the social context is to achieve a specific communicative

goal. Accordingly, different types of writing, such as letter writing and recipes, are used effectively to achieve purpose (Badger & White 2000). This approach may be considered as an extension product approach.

Swales (1990, p. 58) defined a genre as “a class of communicative events, the members of which share some set of communicative purposes.” In addition, this approach regards writing as primarily linguistic; however, unlike the product approach, it emphasizes that writing varies according to the social context in which it is produced (Tuffs, 1993).

Dudley-Evans (1997) identified three stages in the field of English language teaching, which is as follows: first, the learners present and analyze a specific model; second, the learners carry out exercises that are consistent with or related to the forms of the language; and finally, they produce a short text. These three stages closely correspond to the stages of the product approach. Genres are also impacted by other factors of the situation, such as the subject matter, the relationships between the writer and the audience, and the pattern of organization.

On the other hand, proponents of the genre approaches are not often explicit about their theory of learning. The utilization of sample text and their analysis suggests that learning is a matter of imitating, understanding rules, and consciously applying them. This approach has its critics, as both textual knowledge and socio-cultural knowledge belong to genre knowledge. Therefore, it is difficult to determine the knowledge that students need to transfer, as guided by teachers (Paltridge, 2004).

**Figure 1.3***Schematic Diagram of Genre Approach (Badger & White, 2000)*

### 1.10 AI-Assisted Academic Writing

Academic writing is the core of higher education as it enables students to learn and develop their abilities in research, communication, and analytical thinking (Coffin et al., 2003). In addition, one of the major challenges students face, and which they consider a significant problem is the difficulty in producing coherent and grammatically accurate writing. However, with the advancement of technology, AI tools assisted academic writing has emerged as a tool to enhance students' writing skills, support learning, and address both traditional methods and the lack of personalized feedback due to limited teaching time (Nazari et al., 2021)

The concept of artificial intelligence can be traced back to philosophical ideas in ancient Greece, but the term “artificial intelligence” was officially introduced by John McCarthy in 1955 (Chen et al., 2022; McCarthy et al., 1955). Since then, AI has influenced academic writing in educational settings. However, while AI can provide support, it also increases worries about overuse and academic integrity for students and writers in general (Şenocak, Kocdar, & Bozkurt, 2023).

Artificial intelligence (AI) is the process of modeling human intelligence in computers that are designed to think and behave like humans. The idea may also refer to any computer that shows human-like characteristics such as understanding and problem solving (Stryker & Kavlakoglu, 2024). With the development of AI tools like writing helpers, organization and planning, and automated essay grading systems, artificial intelligence has significantly impacted academic writing (Egunjobi, 2024).

Dong (2023) found that writing tools powered by AI technology is helpful for enhancing students' writing abilities. Due to the fact that these tools are able to provide quick feedback, personal support, and improve efficiency in assessment. AI tools like QuillBot, AI Writer, and Typeset allow paraphrasing original phrases or sentences by changing the sentence structure or replacing words with synonyms. Word tune offers a translation option that assists persons who are not native English speakers in translating several languages into English (Nazari et al., 2021). This has contributed to the rise of AI writing tools, significantly effecting academic writing practices.

As mentioned earlier, the integration of AI tools in academic writing presents several challenges for students. One of the primary concerns is overuse, which can hinder critical thinking and analysis. This can also lead to a decline in students' creative and critical thinking skills. In addition, the over reliance on these tools may lead to the creation of similar and very simple texts. From an ethical perspective, it is not problematic because it increases the likelihood of plagiarism. It complicates the evaluation the process, and makes it difficult to distinguish between the student's work and that generated by AI tools.

In conclusion, student's use these AI tools in writing should tools with caution, awareness and balance and avoiding overuses them too much. Students should benefit from them while taking into account other aspects to maintain balance.



### **Conclusion**

To conclude, writing in a foreign language is one of the most challenging processes, and is considered as an essential skill in language learning. This chapter has provided some definitions of writing with its types of the writing skill it also presented different definitions of academic writing, highlighted some genre, and academic writing processes, the approaches of academic writing, at the end, it has discussed the AI assistant academic writing. The next chapter is concerned with an investigation of the effect and challenges of artificial intelligence tools in academic writing.

## Chapter Two

# ARTIFICIAL INTELLIGENCE AND STUDENTS' ACADEMIC WRITING

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## **ARTIFICIAL INTELLIGENCE AND STUDENTS' ACADEMIC WRITING**

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## **Introduction**

The world has recently experienced, particularly in the 21st century, significant advancement and progress in the use of artificial intelligence, especially in the field of education. This has led both teachers and learners to consider ways to improve the use of this new technology in the teaching and learning process. Artificial intelligence is composed of two words Artificial and intelligence. Artificial means human made, and intelligence means the ability of thinking. It has been included in computer programs for a long time, but now it is applied in several fields such as academic settings. This chapter provides a historical overview of Artificial intelligence. It discusses the concept of AI and highlights its definitions, types, tools, and applications in education.

It also emphasizes the importance AI in language learning, including its role in both language acquisition and academic writing. It also sheds light on the integration of AI tools into the academic writing process. The chapter further examines students' motivations and perceptions regarding the use of AI writing tools and analyzes their impact on EFL academic writing. Finally, it addresses the benefits of AI tools for academic writing. As well as the limitations and challenges that may arise from their use.

### **2.1 Historical Overview of Artificial Intelligence**

The idea of artificial intelligence dates back to ancient philosophers who pondered matters of life and death (Riskin, 2016; Truitt, 2015). In ancient times, some inventors created things called automata, a Greek word meaning to act with one's own will (Kotsanas, 2019). One of the earliest records of a robot dates back to 400 BCE, referring to a mechanical dove created by Archytas of Tarentum, a contemporary of Plato (Kotsanas, 2019). Additionally, in 1495, Leonardo da Vinci designed an early humanoid automaton, considered one of the most famous machines of the Renaissance era (Rosheim, 2006).

Turing (1950) in the early 20th century, the foundation of artificial intelligence emerged as scientists began asking: Is it possible to create an artificial brain?.

Scientists also focused on the idea of creating artificial humans, and the term robot was coined in 1921 from a Czech play (Čapek, 1921). Furthermore, some innovators at that time began to create and release what we now call robots. This range of time was when the interest in AI really inspired John McCarthy (McCarthy et al., 1955) to invent the term Artificial Intelligence in the first AI conference at Dartmouth College. Then, he moved on to create the lisp language. At the end of the year, Allen Newell, J.C. Shaw and Herbert Simon develop the Logic Theorist, the first running AI computer program (Newell & Simon, 1956). After that in, Russell and Norvig (1995) presented Artificial Intelligence as a modern approach, which changes into one of the primary textbooks in the study of AI. Within it, they explore four potential definitions of AI, which distinguish between computer systems on the basis of rationality and thinking.

In 2004 John McCarthy wrote a paper entitled What Is Artificial Intelligence? And suggested a commonly referred to definition of AI (McCarthy, 2004). At this stage, the period of huge information and cloud computing is in progress, helping groups to control growing data, which will in the future be used to improve AI models. After several years, we reached 2020, and here, AI investments grew rapidly, and started by the development of deep learning model, guided to the fast growth and public releases of large language models (LLMs) like ChatGPT.

According to Paul (2024), the idea of creating artificial beings capable of thinking and acting like humans dates back to ancient myths and legends from various civilizations, long before the term artificial intelligence was coined. As it appears, these models show human-like characteristics of intelligence, attention, and creativity, and have been integrated into various domains, powering rapid development investment in AI (Bender et

al., 2021; Paul, 2024). However, concerns about the potential risks and ethical implications of advanced AI have also emerged, supporting debate about the future of AI and its impact on society (Bostrom, 2014; Floridi et al., 2021).

## **2.2 Definition of Artificial Intelligence (AI)**

Artificial intelligence (AI) is defined by several of the world's leading experts and specialists, commonly McCarthy (2007), as a system's ability to interpret external data correctly, to learn from such data, and to use those learning's to achieve specific goals and tasks through flexible adaptation. McCarthy's definition highlights learning and adaptation, forming the basis of modern AI, especially in machine learning and reasoning.

According to Reza (2024), in the context of AI, the word 'artificial' refers to intelligence created by humans rather than occurring naturally. It contrasts with 'natural,' and it indicates that AI is human made development. On another hand, as defined by Staff (2024), intelligence is the capability to learn and perform proper techniques to solve problems and achieve goals, relevant to the context in an unsure, constantly changing world. This definition highlights the importance of learning and adaptability in dealing with change and uncertainty, which is the essence of true intelligence.

McCarthy (1956, p. 2) defined AI as "the science and engineering of making intelligent machines, especially intelligent computer programs." He emphasized that AI is related to the similar task of using computers to understand human intelligence, but AI does not have to limit itself to methods that are biologically observable. According to University of Illinois Chicago (2023), AI combines computer science and physiology, and aims to enable machines to achieve goals through computational processes. It involves abilities like thinking, imagining, memorizing, recognizing patterns, making choices, adapting, and learning from experience. AI focuses on making computers behave in a human-like manner, but in much less time than humans (Poole & Goebel, 1998).

According to Bhbosale, Pujari and Multani (2020), AI is a method in which we program the machine to work like a human such as driving cars etc. Lavanya (2021) asserted that AI is the study of science and engineering with which manufacturing of intelligent machines and computer programs are undertaken. The idea of artificial intelligence is based on the very human intelligence, with the exception that AI does not restrict themselves with the biologically observable limitations. Most AI systems trained on recorded data and are capable of identifying patterns, learning from examples, and predicting future outcomes for decision-making purposes.

AI is the most emerging and trending technology that is known to each and every individual, basically it is that branch of science and technology which includes complete study of human brain processes and how logically computation takes place inside the mind in order to perform the task in a smarter way (Patel, 2021). In addition, Copeland (2023) determines that AI is the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings.

In other words, Staff (2024) describes AI as the theory and development of computer systems which is capable of performing tasks that historically require human intelligence, such as recognizing speech, making decisions and identifying patterns. AI is an umbrella term that encompasses a wide variety of technologies like machine learning, deep learning, and natural language processing (NLP).

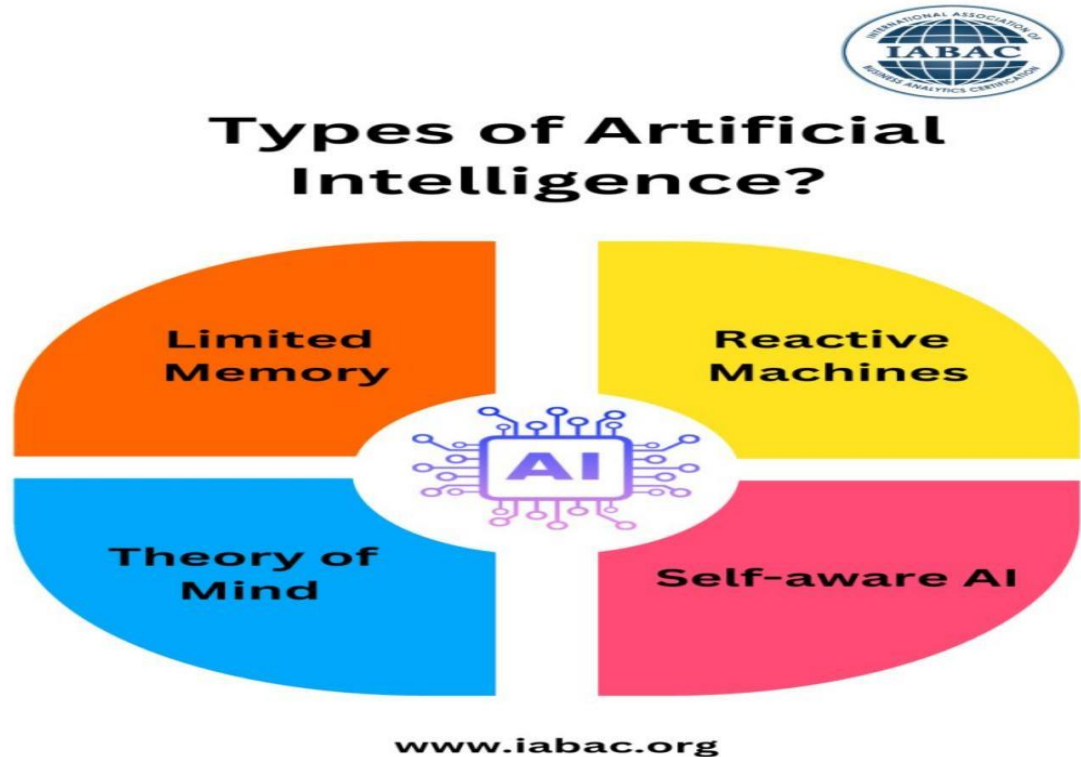
### **2.3 Types of Artificial Intelligence (AI)**

Marr (2024) mentions that there are four essential categories of AI: reactive AI, memory AI, limited theory of mind AI, and self-aware AI, that are not generally unfamiliar to people outside technology. The four types can be described as follows:



**Figure 2.1**

*Four Types of AI Algara (2023)*



### **2.3.1 Reactive Artificial Intelligence (AI)**

For Marr (2021), this type is the most basic one. However, it is rather useful AI. It is called reactive AI because it reacts to present assumptions as its name suggests. In addition, reactive AI works according to the way it is programmed based on the results it predicts and the information it receives. Also, in this category, machines are not capable to learn or imagine the past or future. Reactive AI was an impressive achievement, but it needed further development to resemble human intelligence, since only a few human actions are purely reactive (Marr, 2021).

### **2.3.2 Limited Memory Artificial Intelligence (AI)**

The second type is called limited memory AI, which is more advanced than the previous one. It is characterized by the ability to process learning data and progress with

time (Marr, 2021). This is the AI that is broadly used and being improved today. Deep learning procedures and the deep learning revolution of 2012 made limited memory AI possible. Within it, the models are automatically developed and then updated based on their behavior. Moreover, limited memory AI is able to finish complicated classification tasks and uses historical data to make predictions (Marr, 2021).

### **2.3.3 Theory of Mind Artificial Intelligence (AI)**

Theory of mind artificial intelligence (AI) is the next stage of artificial intelligence, where machines are able to make decisions as humans do. Machines utilizing this AI should be able to identify emotions, store them in memory, and change their behavior in social contexts (Marr, 2021). Kismet (released in 2000) and Sophia (released in 2016) have presented certain aspects of artificial intelligence, highlight the challenges it poses for machines to rapidly adapt their actions to emotions, completely like people do. Nevertheless, if theory of mind AI is progressed, it could allow robots to interact with people and help with daily tasks (Marr, 2021).

### **2.3.4 Self-aware Artificial Intelligence (AI)**

The final type is self-aware AI, which refers to when machines are not only aware of emotions and mental states of others but also of their own (Marr, 2021). When self-aware AI is reached, it would have AI that possesses human-level mindfulness, similar to human intelligence, with the same needs, desires and emotions. To achieve this level of AI, however, the available hardware and processes are currently insufficient (Marr, 2021). Concerns have increased about artificial super intelligence (ASI) and its potential to lead to robots taking over the world. However, it could also promote collaboration between humans and machines, and potentially represent the fifth type of AI that may emerge in the future. For the time being, theory of mind AI research and limited memory AI development will be the focus of AI researchers (Marr, 2021).

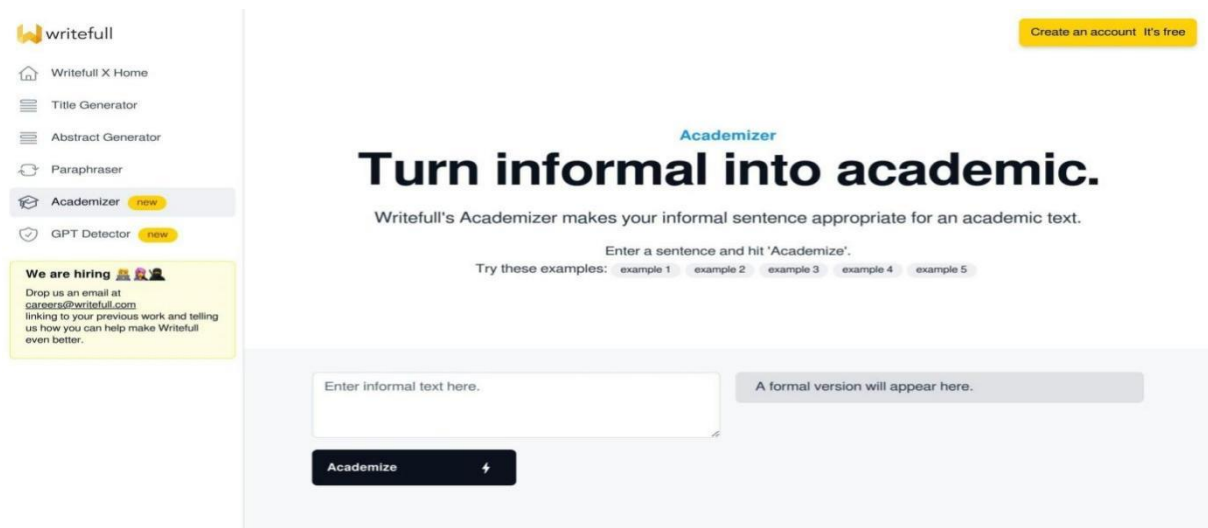
## 2.4 Artificial Intelligence Tools

There are several artificial intelligence tools used by many students and teachers, especially in academic settings and education to perform specific tasks and to solve problems. Each AI tool serves a specific purpose, such as improving writing, paraphrasing, summarizing, grammar, and vocabulary (Uddin et al., 2023). Here are some of them Writfull, Scispace, and ChatGpt.

### 2.4.1 Writfull

**Figure 2.2**

*Writfull Process* (Uddin et al., 2023).



Writfull is an AI-powered tool created to enhance the quality of academic and scientific writing. It helps authors and editors refining their texts to achieve excellence. The AI system provides language feedback, using big data to convey superior results. The platform also features a paraphrasing tool to rephrase sentences and avoid plagiarism. Additionally, Writfull is designed for students, researchers, institutions, and publishers. The platform is free, easy to use interface and academic emphasize make it an excellent tool for improving academic writing skills (Uddin et al., 2023).

2.4.2 Scispace

Figure 2.3

Scispace Interface (Uddin et al., 2023).

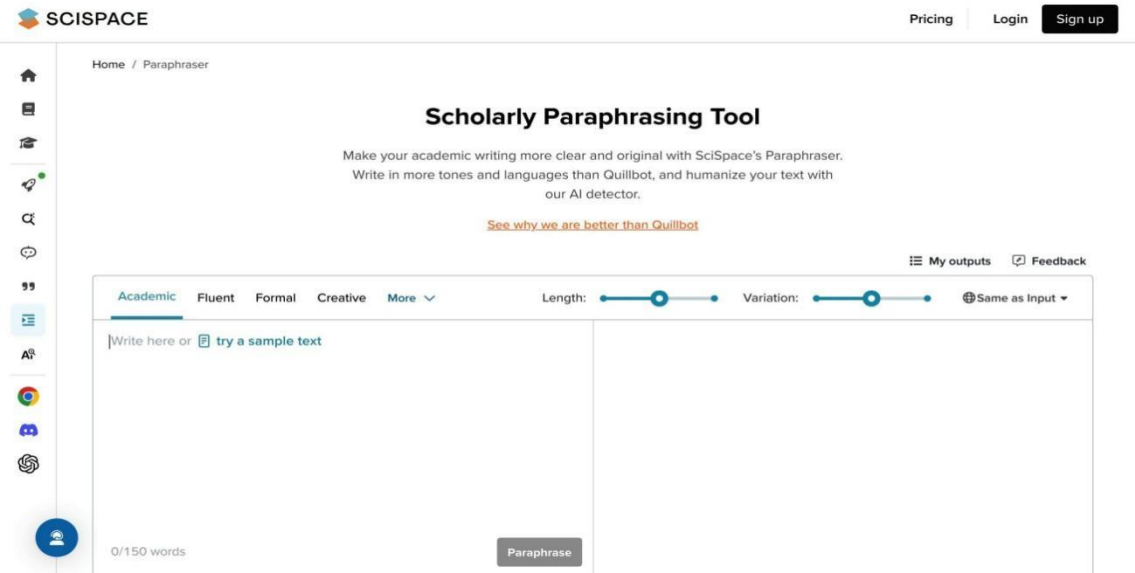


Table 2.1

Description Features of Scispace

Features	Description
Tone styling	Choose from 22 preset tones or customize your tone to sound like any personality
Multilingual Paraphrasing	Paraphrase into 75 languages to overcome language barriers
Customizable Output	Control the length and variation of paraphrased text to suit your needs

Scispace paraphraser is a powerful tool to assist writers and students enhance their academic writing. It suggests advanced language improvement features to improve the clarity and quality of writing (Uddin et al., 2023).

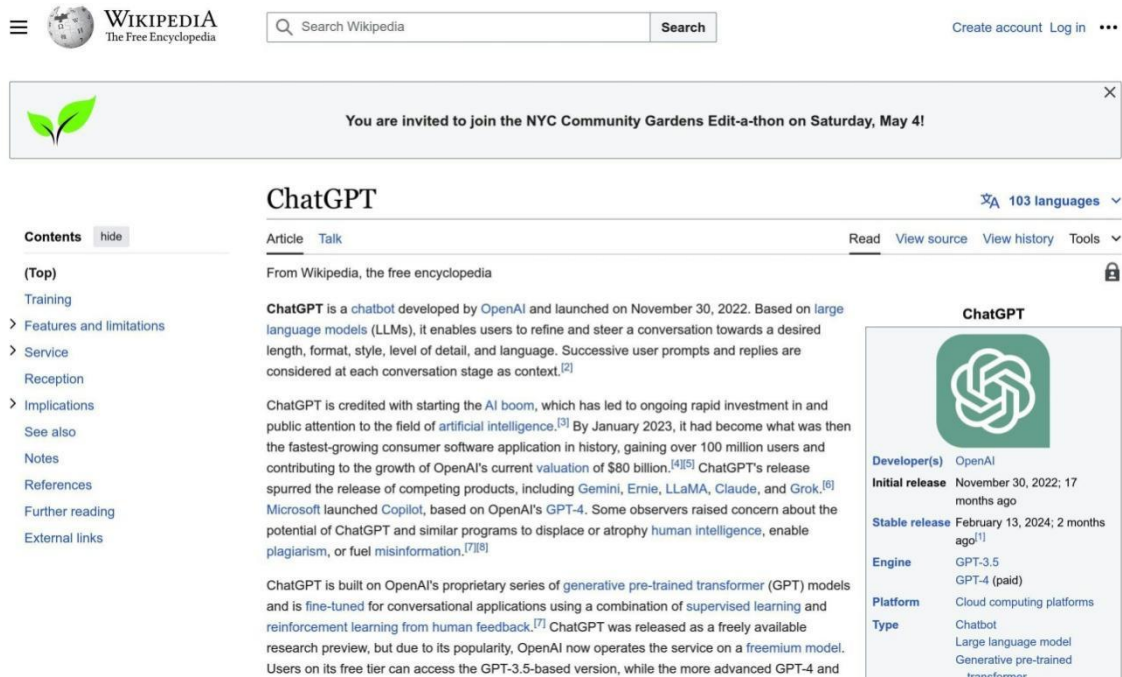
2.4.3 ChatGpt

ChatGPT is an advanced technology that uses developed artificial intelligence techniques to produce natural language answers based on a given specified instruction or

information. It has been applied in various fields, such as content creation, and natural language processing (Uddin et al., 2023).

## Figure 2.4

*ChatGPT Process* (Uddin et al., 2023).



This AI tools uses for clear academic writing, until today, it can greatly simplify and enhance the writing process for students and researchers. These development tools offer a range of characteristics to improve the clarity, accuracy, and overall quality of academic writing. Each of these tools suggests advanced features to help students refine their writing and catch grammar mistakes.

## 2.5 Applications of Artificial Intelligence (AI) in Education

The role of AI in education is highly helpful. It has offered teachers several benefits by taking over time-consuming tasks, such as report correction and managing AI-driven classrooms. Additionally, it is essential to identify the main areas where AI is applied in learning, focusing particularly on the role of learners and educators in using artificial intelligence in modern teaching methods. Using artificial intelligence in learning can

change traditional teaching methods for both students and teachers. Here are some of the main ways AI is being used in education (Alex, 2023):

### **2.5.1 Personalized Learning**

AI in education has allowed each student to discover the best techniques to learn and study their syllabus. Educational software's personalized learning methods have supported learners in highly effective ways. By adding machine learning to the education system, the support for how students perceive each lesson has helped students feel less stressed when learning. The merging of AI and education focuses on the requirements of every student through features such as AI-based games, personalized programs, and other helpful tools to make learning easier (Alex, 2023).

### **2.5.2 Task Automation**

Alex (2023) in schools and Online classrooms, AI automates essential tasks such as reviewing assignments, grading tests, evaluating research papers, saving reports, and creating presentations and notes. This automation not only personalizes the teaching process but also increases productivity in the learning environment.

### **2.5.3 Smart Content Creation**

Artificial intelligence and machine learning support educators and researchers by simplifying content creation and enhancing learning experiences. Key benefits include: Visual data presentation, where AI enables 2D and 3D visualizations to make abstract concepts clearer and online learning more practical. online lessons, which make it possible to be concise, mobile-accessible materials that reduce storage needs and support flexible, online learning; and regular updates, where AI ensures educational content remains current and notifies users of new information to aid in planning (Alex, 2023).

#### **2.5.4 Presentation Translator**

Fitria (2023), a presentation translator converts spoken or written content from one language to another, allowing users to understand texts in their native language through voice input. This AI-driven speech recognition technology enables users to listen to speeches, articles, and digital content without needing to read.

#### **2.5.5 Identifying classroom weaknesses**

One of the most significant advantages of artificial intelligence in educational institutions is the ability to reduce our environmental impact via distance learning (Alex, 2023). However, many experts believe that AI will soon take the human touch in education. This may also be true for other fields, but it is not true for education. AI and education go together, completing both manual and virtual instruction.

#### **2.5.6 Automatic Assessment**

AI is widely used for assessment purposes and online automatic question correction that are done online. Teachers do not need to correct questions manually (Fitria, 2023). Automatic assessment of English composition is an inevitable consequence of the swift advancement of computer and artificial intelligence technologies (Bin & Mandal, 2019).

### **2.6 Importance of Artificial Intelligence in Language Learning**

Ayotunde et al.(2023) stated that AI has also had a great influence in language learning and offers many opportunities for language learners and English foreign language learners (EFLL) precisely, since English language is considered one of the most global language that all people around the world are trying to learn .According to Ayotunde et al., (2023), the overall advantage of artificial intelligence in the educational endeavors of students encompasses the customization of instructional sessions, conducting lessons from a distance regardless of geographical constraints or technological tools, prompt feedback from educators and automated conversational agents, and continuous availability of educational resources throughout the learning journey. However, AI systems have also

played a big role in helping students feel more motivated and involved in learning. Using AI to encourage students is a growing area in education because it can create personalized learning that keeps students interested and helps them learn better (Neji et al., 2023).

Moreover, AI It has been said that AI-powered tutors and chatbots have changed the way people learn foreign languages by letting students practice with virtual tutors that feel like real conversations. Consequently, AI offers learners new opportunities to improve their written and verbal communication skills (Chisega-Negrilă, 2023). Likewise, AI provides grammar and vocabulary support, as noted by Stošić and Malyuga (2024), who stated that AI enables the analysis of vocabulary breadth, precision in word usage, and vocabulary diversity.

### **2.7 The Role of AI in Language Learning and Academic Writing**

According to Saha and Mondal (2024) artificial intelligence, like other technological innovations, plays an important role in education by improving teaching and learning, big data powers advancements in technology. Artificial intelligence can help improve core language competencies such as speaking, listening, reading, and writing. AI-powered tools, such as speech recognition, chatbots, virtual tutors, and language learning apps, help to create engaging and interactive learning experiences. These innovations like instant feedback, tailored assessments, and personalized learning materials have the potential to improve learners' communication skills and accelerate the process of learning a new language (Khalil, 2024).

AI is having a significant impact on many areas of education, particularly in teaching English as a second language (ELT). AI-powered tools and technologies improve students' learning experiences, personalize learning, and provide immediate feedback at all grade levels (British Council, 2023).



Jeon, Lee, and Kim (2023) noted that AI is enhancing language education by allowing learners to access resources and feedback anytime and anywhere. It tailors learning to individual progress, preferences, and styles. AI helps English learners overcome challenges like lack of native speakers and slow feedback while promoting personalized support. Additionally, AI improves educational experiences for all students by fostering equality, efficiency, and enjoyment in learning. AI tools are making English language teaching more engaging and involving.

According to research, Hekmat (2024) explains that AI has the ability to significantly change English education. AI makes language learning more efficient for students. Although research on the effects of AI in education is still in its early phases, initial results are hopeful. AI can enhance language learning by making the process more rapidly. To understand how words are connected, learners practice repeating specific stages. One example of AI being used for language learning is Siri, which helps with pronunciation and comprehension. Radwan (2017) stated that artificial intelligence can address challenges in English teaching and learning by using techniques such as information remembering for comprehension, machine translation for interpretive skills, automatic speech processing for accurate pronunciation, by using a writing evaluation technique to teach paragraph and essay writing, and electronic dictionaries (Al Mukhallafi, 2020).

In addition, Chen and Gong (2025) discussed the role of AI in academic writing. The goal of improving students' academic writing has directed educators, researchers, and policymakers to look for new ways to improve learning and provide better teaching (MacIntyre et al., 2019). Various modern digital tools and online resources, including AI-powered tools, have been introduced to suggest collaborative and personalized support to help students improve their writing skills (Jiang, 2022; Yan, 2023). Understanding AI's

powerful impact, language teachers and researchers are rising using it to assist students in developing their academic writing abilities (Ji et al., 2023). As AI technology becomes more widely available, students can now easily use these tools anytime and anywhere, with few physical limitations (Yan, 2023).

### **2.8 Students' Motivations and Perceptions of AI Writing Tools**

AI writing tools are computer programs that help people write better by using artificial intelligence. These tools can suggest better words, and even help generate ideas for writing. Popular AI writing tools include ChatGPT, Scispace, and others tools. Many students use them to improve and enhance their writing, save time, and overcome language difficulties. However, some people worry about over-relying on AI and whether it affects originality and learning. As these tools become more advanced, they are changing the way students write and learn.

According to Malik et al. (2023), most of the research that examined AI writing tools focused on their use and impact on students' writing. AI-powered writing tools, such as style assessment tool, and content creators, have become common in educational settings, supporting students quickly as they work on their writing. Malik et al. (2023) stated that these tools not only help in identifying grammatical errors and syntax issues but also give suggestions for improving clarity, coherence and coherent in writing (Bensalem et al., 2024).

Furthermore, ChatGPT and other AI-powered technologies can assist students develop material and offer Suggestions for improved vocabulary and sentence patterns Marzuki et al. (2023). According to Dwivedi et al. (2023), AI technologies help students by managing routine tasks and providing real-time guidance, allowing them to focus on thinking skills, such as critical analysis, argumentation, and creative expression (Bensalem et al., 2024).

Additionally, Research has shown that AI-driven language learning instruments have the ability to help language acquisition, especially about writing skills. Chang et al., (2021) finds that students who used AI-based writing tools presented improvements in writing quality, accuracy, and coherence compared to those who utilized only traditional methods. Liu et al. (2021) have shown that AI-powered writing helpers improve students' writing fluency, efficiency, and overall writing skills (Bensalem et al., 2024).

Based on the findings of Smith and Johnson (2023) students have mixed perceptions of AI tools, with some seeing them as valuable assistants that enhance learning and efficiency while others worry about dependence and ethical concerns. As AI becomes more integrated into education, students continue to navigate its benefits and limitations in their academic journey. Following Smith and Johnson (2023) students' perceptions of AI writing tools remain under-researched, given their recent introduction into education. Also, on the other hand, a study conducted by Chan and Hu (2023), which evaluated the perceptions of generative AI (GenAI) technologies among 399 students in Hong Kong, found that participants expressed a positive view of tools such as ChatGPT. They reported using it to enhance their writing particularly in brainstorming and composition tasks (Bensalem et al., 2024).

Specifically, researchers stated that it was a helpful tool because it demonstrated to students how to improve their writing, which led to better writing skills. Moreover, another study examined students' perceptions of AI-powered tools such as Google translate and Grammarly, and it revealed generally positive attitudes toward their use in academic writing (Kim & Han, 2021). O'Neill and Russell's (2019) study demonstrated that college students answered positively to Grammarly's grammar comments, and they thought the tool was simple to use and useful. Based on Jeong's (2021) research, language learners found it easier to use automatic translators such as google translate, which helped their

English writing skills. However, some participants reported incorrect translations as well as strange idioms or grammatical constructions. Some students also need help to improve their English writing abilities and are concerned about becoming too dependent on AI-based solutions (Bensalem et al., 2024).

Other researchers concentrated on the perceptions of college students regarding the ethical use of AI writing tools, namely ChatGPT (Dwivedi et al., 2023). As an example, Črček and Patekar (2023) found that some students accepted the fact that using ChatGPT to write a task is unethical because it is a form of cheating. Although research on AI and writing is growing, there are still gaps in fully understanding its detailed impact on student writing (Bensalem et al., 2024).

Fithriani (2023) found that EFL students had a positive view of using QuillBot in academic writing. They saw it as helpful for developing ideas, correcting grammar, and improving language use. While AI tools like QuillBot can support student writing, more research is needed to explore their specific impacts. However, over-dependence on AI decreases the cognitive ability of the students (Zhai et al., 2024). While some research (Kurniati & Fithriani, 2022) suggests that students can write in a good way by using AI-powered writing tools, other studies (Liu et al., 2022) have raised concerns about the tools' possible drawbacks.

GenAI may present a risk to academic integrity since even detection methods like ZeroGPT may not effectively identify content produced by ChatGPT (Ibrahim, 2023). Furthermore, depending too much on GenAI tools may weaken students' ability to develop proper writing skills (Warschauer et al., 2023) and negatively impact their creativity and freedom (Smith, 2023). Accordance with (Sun & Hoelscher, 2023), and to successfully combine these technologies into language education programs and enhance language

learning results, it is essential to understand students' experiences with AI technology (Lee, Davis, & Lee, 2024).

However, due to the recent launch of key tools like ChatGPT. (Strzelecki, 2023), there are very few studies on the use of writing tools and their perceived effects on students' writing abilities. By gathering students' perspectives, educators and leaders can address these concerns and develop guidelines and structures that encourage the ethical and responsible use of AI writing tools in education (Escalante et al., 2023).

A careful method to AI writing tools is important. If students focus only on benefits and ignore risks, unfocused use may lead to plagiarism. However, avoiding these tools completely can also be a disadvantage, as they can improve writing when used responsibly. Overcoming challenges is part of life (Straud et al., 2015), and effective learning strategies help improve academic success (Hui et al., 2021). Excellent students often use better learning strategies (Geller et al., 2018), and digital writing tools, when used correctly, can be part of these strategies (Burkhard, 2022).

## **2.9 The Impact of AI Writing Tools on EFL Academic Writing**

Teng and Wang (2023) noted that academic writing courses have been designed over centuries to group students with the skills and knowledge necessary to succeed in various educational programs. Researchers have specifically designed these educational programs to assist learners in developing and improving their writing proficiency in center principals. (Mendoza et al., 2022; Cheong et al., 2023; Schillings et al., 2023). These academic writing concepts include structuring and organizing academic papers, ensuring proper sourcing and citation of taken scholarly ideas, and writing inappropriate language and style (Aljuaid, 2024).

Additionally, as stated by researchers Ginting and Barella (2022), Nazari et al. (2021), and Perkins (2023), AI powered writing assistants are among the developing

technologies in academic courses. AI-driven writing tools commonly employ Natural Language Processing (NLP) educated on large collections of text created by humans. A growing body of research agrees that AI-powered tools assistants have showed benefit in enhancing students' writing abilities and improving their trust and performance during the writing process. As mentioned by (Machicao, 2019), there are concerns about them causing dependence or being used in the wrong way (Aljuaid, 2024).

Nazari et al., (2021) AI writing tools have significantly influenced academic writing by enhancing efficiency, accessibility, and skill development. These AI programs like QuillBot, AI Writer, and Typeset suggest the ability to rephrase original phrases or sentences by modifying the sentence structure or replacing words with synonyms. Wordtune offers a translation option that assists English learners in translating several languages into english which means these tools affect text modification and provide language assistance (Aljuaid, 2024). Even though AI is becoming more important in education, there are not enough clear theories explaining how it should be used in academic writing. Existing models include the Technology Acceptance Model (TAM) developed by Davis et al. (1989). Wang et al., (2022) CoI asserts that AI tools help to building a sense of community, encouraging cognitive engagement, and supporting effective teaching in the online component of academic writing courses (Aljuaid, 2024)

As reported by Teng et al. (2022) and Zhao et al. (2023), AI tools have limitations, such as irregular error notifications mistake in rephrasing, and have raised worries over unnecessary dependence on digital tools and their influence on academic honesty. There is argument regarding the impact of AI on students' critical thinking, research processes, and communication skills that are outside the current scope of automated tools. Schillings et al. (2023) warned that academic writing is not limited to syntax and grammar. Present AI tools focus on basic tasks, but writing involves more complex skills like analyzing information,

forming arguments, and combining ideas, which are skills that AI tools cannot completely copy (Aljuaid, 2024).

Some researchers have mentioned possible gaps for further exploration. Caprioglio and Paglia (2023) raised concerns that there is a lack of research on the impact of AI writing tools on higher-order skills like critical thinking, analysis, argumentation, and synthesis in academic papers across different disciplines. According to Alharbi (2023), there is limited research on how the use of AI tools influences the development of genuine student voice and writing style in academic contexts (Aljuaid, 2024).

AI in academic writing also raises ethical issues. AI-generated is ambiguous and may break on mental items claims, making plagiarism finding difficult. There are also concerns that AI technology may block critical thinking and originality in doctoral dissertation writing (Alston et al., 2022; Nazari et al., 2021). Conditions and rules that ensure ethical AI use in academic writing are needed to address these challenges. Perkins (2023) supports improving transparency and comprehension in AI-generated literature to address its clarity (Aljuaid, 2024).

### **2.10 Benefits of Artificial Intelligence Tools for Academic Writing**

Artificial intelligence (AI) tools have become beneficial in academic writing, helping students and researchers improve their work. These tools can suggest better expression and help with citations, making writing clearer and more professional. AI also saves time by quickly summarizing information and organizing ideas. With these benefits, AI assists learning and enhances the quality of academic writing (Gururaj, 2024). AI tools for academic writing are a double-edged sword (Gururaj, 2024). AI writing assistants are making a significant impact in the academic world, offering a variety of advantages for researchers and students. However, these tools also come with limitations that need careful consideration.

One major benefit is enhanced efficiency. AI tools can help researchers and scientists write faster and work more effectively. Features like grammar and plagiarism checkers, citation generators, and paraphrasing tools assist in improving writing quickly and efficiently (Gururaj, 2024). Another advantage is improved clarity and simplicity. These tools can analyze writing style and suggest ways to make tasks easier to understand especially useful for students who struggle to express complex ideas clearly (Gururaj, 2024). Additionally, research and brainstorming support is a key benefit. Certain AI tools function as research assistants by summarizing academic papers, identifying key points, and suggesting relevant sources. This makes the research process easier and helps generate new ideas (Gururaj, 2024). Lastly, AI tools aid in overcoming writer's block. AI writing assistants can generate outlines, introductions, or creative text formats, providing inspiration and helping writers get started (Gururaj, 2024).

### **2.11 Limitations and Challenges of AI tools in academic writing**

Rahman et al. (2024) note that while AI tools have made writing easier and more efficient, they also come with several limitations and challenges. Additionally, AI-generated content may not always meet the high academic standards required for scholarly work. Over-reliance on these tools can lead to superficial writing that lacks depth and originality. Therefore, it is essential to use AI as a supportive tool rather than a complete replacement for human effort in academic writing.

An important limitation of AI in academic writing is the lack of academic discipline with regard to academic writing. Accuracy and exacting requirements are necessary; however, AI fails to meet these standards regularly. The software lacks the ability to critically analyze sources, provide accurate citations, and follow the precise formatting rules needed for academic journals. As stated by Livberber and Ayvaz (2023), the critical



thinking ability of AI is limited, and it does not have the expertise in a specific scientific field required for conducting scientific research.

Yet another limitation is the insufficient knowledge base. To produce persuasive scholarly articles, it is essential to have a deep understanding of the subject matter. Having a clear understanding of the topic is important for writing persuasive academic articles (Rahman et al., 2024). According to Lim et al. (2023), AI systems are very limited in making expectations based on the information they have been offered. Also, AI-generated materials cannot provide or analyze the same information as an author or researcher. The results showed that giving writing credit or citing such content in prestigious academic journals is not yet suitable (Lim et al., 2023).

Rane et al., (2023) pointed out that AI-generated writing lacks the ability to think critically and systematically organize the interconnected and diverse information required in academic writing. Also, they noted that the results are not guaranteed and users should always verify their accuracy and reliability (Rahman et al., 2024). Additionally, lack of human cognitive abilities: while it can generate content based on given prompts, it may struggle with complex tasks that require connecting disparate concepts and presenting them coherently (Kasneci et al., 2023). In line with a study done by Schuetz and Venkatesh (2020), AI systems are still developing and have not yet achieved human level cognitive abilities.

One of the final limitations is the questioning of authenticity. In academic circles, plagiarism is a serious issue (Rahman et al., 2024). In addition, academic writing assistance tools should emphasize authenticity as a top priority and stand firmly against all forms of plagiarism. Regarding to Hao (2022) it is of essential importance for students and researchers alike to develop their own unique ideas, engage in comprehensive research, and carefully cite their sources in order to guide clear from any a hint of academic

dishonesty. They must and should ensure that their sources of information are completely correct and accurate in order to avoid academic plagiarism. Hao (2022) argues that not doing so not only harms students' academic credibility but also discredits their honesty. Many academics believed that independent and individual work, along with the resulting excellence in creativity comes from the author's awareness, which in turn determines the authenticity of the work (Rahman et al., 2024).

As reported by Michel et al., (2023) students face several challenges when using AI tools in academic writing. These challenges include a lack of awareness and understanding of its capabilities, accuracy and reliability issues, inadequacies in personalized learning, technological barriers, and limited communication and collaboration opportunities. They explained that although all students used AI tools to assist with academic writing, they still encountered several challenges. Misra and Chandwar (2023) warned that such misuse can result in serious academic consequences, including disciplinary actions.

Yu et al. (2023) highlighted how this can negatively impact academic work by misrepresenting perspectives and reinforcing inequalities. This issue raises ethical concerns about fairness and inclusivity in education. When students depend too much on AI to generate ideas and content, they may engage less in the learning process. Farrokhnia et al., (2023) argued that this dependence can hinder the development of essential skills such as problem-solving, critical analysis, and independent thinking, which are crucial for academic and professional success.

### **Conclusion**

In conclusion, AI writing tools utilize artificial intelligence to help users improve their writing skills. These tools suggest several advantages for English as foreign language (EFL) learners, including: enhancing vocabulary and sentence structure, providing feedback on grammar and spelling errors, and assisting with generating ideas and

organizing thoughts. This chapter presented an overview of Artificial Intelligence (AI) in education and academic writing. It began with a historical background of AI, and discusses its definitions, types, and tools of Artificial Intelligence. Additionally, this chapter explores the importance, the role, students' motivation and perceptions, the impact of these tools, benefits for academic writing, limitations, and challenges, such as concerns about originality, ethical implications, and over-reliance in academic writing.

## Chapter Three

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## **Introduction**

This chapter presents the methodological fieldwork of this study. It begins with an overview of the research methodology and addresses the key aspects, including paradigms, approaches, designs, data collection methods, data analysis procedures, and sampling techniques. Then it identifies and describes these aspects with the purpose and methodology of the current study, along with the rationale behind the selected choices, which include a qualitative approach to address the research objectives effectively. The chapter also provides a detailed explanation of the practical implementation of the study, including the stages of data collection and treatment application. as the research aims to offer a comprehensive understanding of the subject under investigation. Moreover, the chapter highlights the importance of ethical considerations and the systematic organization of data to ensure the study's credibility. By presenting a structured overview of the methodology, this chapter lays a systematic foundation for the research.

### **3.1 Research Methodology: Theoretical Background**

As explained by Kothari (2004), research is an area of investigation to solve a problem within a short period of time or in the coming long future. This section presents a general theoretical background outlining the major methodological components of research, including paradigms, approaches, designs, data collection methods, data analysis procedures, and sampling techniques.

#### **3.1.1 Research Paradigms in Educational Research**

Burns (1997) described research as a systematic investigation in which data is collected, analyzed, and interpreted to "understand, describe, predict, or control an educational or psychological phenomenon, or to empower individuals in such contexts" (Mertens, 2005, p.2). O'Leary (2004) argued that what was once easily defined thirty or forty years ago has become far more complex, as the number of research methods has

increased significantly, especially in the social and applied sciences. However, it has been suggested that the "exact nature of the definition of research is influenced by the researcher's theoretical framework" (Mertens, 2005, p.2). Theory plays a key role in establishing relationships between various constructs that help to describe or explain a phenomenon, going beyond the local event to connect it with similar occurrences (Mertens, 2005, p.2).

Philosophical concepts in educational research paradigms like, ontology, epistemology, positivist, interpretivist, and critical or transformative can be confusing and problematic for both novice researchers and some experienced researchers. This is because these concepts are not clearly discussed or explicitly defined in research literature and sometimes different terms and meanings are attributed (Mackenzie & Knipe, 2006).

The word paradigm comes from Greek philosophy, where it simply means a pattern or model originally. It mainly comes from the work of Kuhn (1970) who defines it as "the set of common beliefs and agreements shared between scientists about how problems should be understood and addressed". In another definition Paradigm is the "set of related assumptions about the social world which provide a philosophical and conceptual framework for the organized study of that world" (Filstead, 1979 in Mustafa, 2011: 24).

Burrell and Morgan (1985) state that a research paradigm also guides the researcher with the appropriate methodological design and the basic methods and resources that support the research perspective and which, in turn, helps the research succeed as a whole and supports achieving the specific objectives. Overall, it seems clear that research paradigm involves the elements of the researcher's philosophical perspectives of the world, the nature of the area being researched, the research methodology and methods. Researchers address these elements as the key components of any of the research paradigm. As discussed by Grix (2004), Howell (2013), and Mustafa (2011), The first two



components are commonly referred to as 'ontology' and 'epistemology' of the research and the following section will elaborate each of the four components in detail.

Additionally, Blaikie (2009) stated that there are four key components of research, namely 'ontology', 'epistemology', 'methodology' and 'methods'. Scholars agree that ontology is the starting point of all research, is "claims and assumptions that are made about the nature of social and political reality, claims about what exists, what it looks like, what units make it up and how these units interact with each other", as it focuses on the nature of reality and what can be known to exist. Also Grix (2004), defined epistemology as "the possible ways of gaining knowledge of social reality".

In short, Epistemology focuses on how knowledge is gained and is concerned with developing new ideas or perspectives that improve on existing ones. However, some scholars argue that epistemology should not be limited to the ways of acquiring knowledge but should also be concerned with the relationship between the investigator and what can be discovered (Howell, 2013; Lincoln & Guba, 2000). The definitions of epistemology above highlight two central issues that are frequently at the core of epistemological discussions in social research. The first concerns the best way of gaining knowledge and the other is related to the nature of relationship between the researcher and the phenomena being investigated.

Methodology refers to the systematic approach or framework guiding the research process. It includes the principles and rules that researchers follow to select appropriate methods for investigating a research question. That is to say, methodology outlines how research should be conducted. The term paradigm may be defined as "a loose collection of logically related assumptions, concepts, or propositions that orient thinking and research" (Bogdan & Biklen, 1998), and it also refers to the underlying philosophical motivation or objective for conducting a study (Cohen & Manion, 1994). On the other hand, Naughton,

Rolfe and Blatchford (2001) provided a definition of paradigm, which includes three elements: a belief about the nature of knowledge, a methodology and criteria for validity. Certain authors choose to discuss the interpretive framework in relation to 'knowledge claims' (Creswell, 2003), epistemology or ontology or even research methodologies (Neuman, 2000) rather than referring to paradigms.

A number of theoretical paradigms are discussed in the literature such as: positivist (and postpositivist), constructivist, interpretivist, transformative, emancipatory, critical, pragmatism and deconstructivist. The use of various terms in different texts and the varied claims regarding how many research paradigms there are, sometimes leads to confusion for the first time or early career researcher. The following are definitions of some of the most commonly discussed research paradigms in literature.

### **Postpositivist (and positivist) Paradigm**

Positivism is sometimes referred to as 'scientific method' or 'science research', and it is "based on the rationalistic, empiricist philosophy that originated with Aristotle, Bacon, Locke, Comte, and Kant" (Mertens, 2005) and "reflects a deterministic philosophy in which causes probably determine effects or outcomes" (Creswell, 2003). Positivism may be applied to the social world on the assumption that "the social world can be studied like the natural world, that there is a way to study it without personal bias, and that we can find cause-and-effect explanations" (Mertens, 2005).

Positivists aim to test a theory or describe an experience "through use observation and measurement to help us predict and control what happens around us" (O'Leary, 2004). After World War II, positivism was replaced by postpositivism (Mertens, 2005). Postpositivists work from the assumption that any piece of research is influenced by a number of well-developed theories apart from, and as well as, the one which is being tested

(Cook & Campbell, 1979). Also, since Kuhn (1962), theories are seen as temporary, and new ideas can challenge or even replace the entire theoretical framework.

However, O'Leary (2004), provided a definition of postpositivism which aligns in some sense with the constructivist paradigm claiming that postpositivists see the world as ambiguous, variable and multiple in its realities "what might be the truth for one person or cultural group may not be the "truth" for another". O'Leary (2004) suggested that postpositivism is intuitive and holistic, inductive and exploratory with findings that are qualitative in nature. This definition of postpositivism appears to differ from the more commonly accepted definition given by Mertens (2005). Both positivist and postpositivist research are usually linked to quantitative methods for collecting and analyzing data.

### **Interpretivist/Constructivist Paradigm**

The interpretivist/constructivist paradigm developed from Edmund Husserl's philosophy of phenomenology and the work of Wilhelm Dilthey and other German thinkers who focused on understanding meaning, a field known as hermeneutics (Mertens, 2005, as cited in Eichelberger, 1989). Interpretivist/constructivist approaches to research have the Purpose of understanding "the world of human experience" (Cohen & Manion, 1994), suggesting that "reality is socially constructed" (Mertens, 2005). The interpretive researcher tends to rely upon the meanings people assign to their social realities "participants' views of the situation being studied (Creswell, 2003) and recognises the impact on the research of their own background and experiences. The constructivist researcher is most likely to rely on qualitative data collection methods and analysis or a combination of both qualitative and quantitative methods (mixed methods). Quantitative data may be utilized in a way, which supports or expands upon qualitative data and effectively Enhances the description.

### **Transformative Paradigm**

The transformative paradigm it started in the 1980s and 1990s, partially due to dissatisfaction with the existing and dominant research paradigms and practices, and also because they realized that many ideas in sociology and psychology were limited or not enough, which lay behind the dominant paradigms "had been developed from the white, able-bodied male perspective and was based on the study of male subjects" (Mertens, 2005). Transformative researchers felt that this approach ignored social justice and marginalized groups.

According to Creswell (2003), research should be connected to politics and include a plan for change that can impact the lives of participants, the institutions they are part of, and even the researcher. Transformative researchers might use both qualitative and quantitative methods like interpretivist/constructivists do. However, using a mixed methods approach gives them a clear framework to develop a deeper understanding and drive meaningful change. Somekh & Lewin (2005) emphasize "the importance of using multiple perspectives to provide a comprehensive understanding of our social world, encompassing a wider range of values, stances, and positions."

### **Pragmatic Paradigm**

Pragmatism is not dedicated to any one system of philosophy or reality. Pragmatist researchers focus on the 'what' and 'how' of the research problem (Creswell, 2003). Early pragmatists "disagreed with the idea that social research could uncover the 'truth' about the real world just by using one scientific method" (Mertens, 2005). While pragmatism is seen as the paradigm that provides the underlying philosophical framework for mixed-methods research (Tashakkori & Teddlie, 2003; Somekh & Lewin, 2005), some mixed-methods researchers align themselves philosophically with the transformative paradigm (Mertens, 2005). It may be said, however, that mixed methods can be applied to any paradigm, with

the pragmatic paradigm focusing on the research problem as the central focus (Creswell, 2003). With the research question, data collection and analysis methods are chosen based on their ability to provide insights without philosophical loyalty to any alternative paradigm.

### **3.1.2 Research Approaches**

A research approach refers to the steps and methods used for gathering, analysing, and interpreting data (Creswell, 2009). The choice of the right approach depends on the nature of the research problem. Generally, it is divided into three main parts: a philosophical perspective, research design, and research methods; when choosing the right research approach, researchers must combine research methods and designs effectively (Grover, 2015). According to Grover (2015), there are specific criteria for selecting the right research approach. These include understanding the research problem and the questions being asked, choosing the type of research that best fits the problem, and considering the reasons for conducting the research. These steps help in exploring different ways to present results and select the best approach (Grover, 2015). Consequently, there are three critical approaches that any researcher should be familiar with, quantitative approach, qualitative approach, and mixed methods approach.

#### **The Quantitative Approach**

The quantitative approach is a research method that focuses on using numerical data, measurements, and statistics to support or refute claims, and it is essential to understand that quantitative and qualitative approaches are not opposing or entirely separate but rather exist as “different ends on a continuum” (Grover, 2015), meaning they can complement each other depending on the research problem. If a research question cannot be addressed using a quantitative approach, a qualitative approach may be more

suitable, and vice versa, as both methods are tools that researchers can choose based on the nature of the study.

According to Creswell (2014), a research approach refers to “plans and the procedures for research that span the decisions from broad assumptions to detailed methods of data collection and analysis”. Which means the approach guides every step of the research process, from the overall design to the specific techniques used for collecting and analysing data, and is deeply rooted in the theoretical framework that supports the study. The quantitative approach is particularly useful when the researcher needs to work with quantifiable and numerical data, such as statistics, graphs, or measurements, to draw objective conclusions (Symeou & Lamprianou, 2008). This method is often associated with scientific and objective inquiry, typically aligned with positivism and post-positivism, which emphasize observable and measurable evidence.

However, it is important to note that the quantitative approach has limitations, especially when dealing with complex human behaviours or experiences that cannot be easily measured, in which case qualitative methods may be more appropriate. Ultimately, the choice between quantitative and qualitative approaches depends on the research problem, the type of data needed, and the theoretical perspective guiding the study, as both methods serve different but equally valuable purposes in advancing knowledge and understanding in various fields of research.

### **Qualitative Approach**

The qualitative approach is a research method that focuses on understanding the deeper meanings and complexities of human behaviour and social phenomena. Unlike quantitative research, which relies on numbers and statistical analysis, qualitative research uses soft data like words, descriptions, observations, body language, and images to explore how people feel, think, and experience the world around them (Symeou, 2008). This

approach is especially useful when researchers want to study topics that cannot be easily measured or quantified, such as emotions, cultural practices, or personal experiences. Researchers who use the qualitative approach often adopt the constructivist paradigm. This means they believe that reality is not fixed but is shaped by people's individual experiences and perspectives. As a result, they focus on interpreting the meanings that participants attach to their experiences, rather than searching for a single, objective truth. However, this approach has its critics.

Some scholars argue that because qualitative research relies heavily on the researcher's interpretation, and it can be influenced by their personal biases or assumptions. This subjectivity might lead to findings that are not entirely reliable or accurate, especially when compared to quantitative research, which uses measurable and objective data (Daniel, 2016). For instance, if a researcher has strong personal opinions about a topic, they might unconsciously interpret participants' responses in a way that aligns with their own views, rather than reflecting the participants' true perspectives.

Despite these challenges, the qualitative approach remains a powerful tool for exploring complex social and human issues. It allows researchers to capture the richness and depth of people's experiences in a way that numbers alone cannot. By focusing on understanding the "why" and "how" behind human behaviour, qualitative research provides valuable insights that can complement quantitative findings and help create a more complete picture of the phenomenon being studied.

### **The Mixed Methods Approach**

Another research approach that arises through the combination of quantitative and qualitative researches is the mixed-methods approach. Subedi (2016) resolved that this approach was discovered in the late 20 years as a distinct orientation that is less known compared to that of qualitative and quantitative approaches. This approach allows

researchers to gather and analyse numerical data (like statistics) and narrative data (like interviews or observations) to address research questions more effectively. This approach emerged in the mid-to-late 1900s and has been referred to by various names, such as multi method research, methodological triangulation, and multi methodological research (Dornyei, 2007).

The core idea is to integrate both types of data within one study to provide a more comprehensive understanding of the research problem (Dornyei, 2007; Doyle, Dublin, & Brady, 2009). The philosophical framework that best aligns with this approach is pragmatism, which emphasizes practical solutions and flexibility, making it suitable for combining different methods. For example, a study on education might use test scores (quantitative data) alongside interviews with students (qualitative data) to evaluate the effectiveness of a new teaching method, offering a richer and more perspective than using either method alone.

Despite its strengths, the mixed-methods approach has faced criticism. Some scholars argue that quantitative and qualitative methods are rooted in different philosophical assumptions and use distinct procedures, making them inherently incompatible and difficult to combine within the same study (Cohen, Manion, & Morrison 2007). Additionally, this approach can be resource-intensive, requiring significant time, effort, and expertise.

Johnson and Onwuegbuzie (2004) highlighted that it is often challenging for a single researcher to manage the distinct phases of mixed-methods research, such as data collection, analysis, and integration, which is why a team of researchers with expertise in both quantitative and qualitative methods is often necessary (Doyle et al., 2009). Furthermore, the complexity of designing and implementing a mixed-methods study can lead to challenges in ensuring the validity and reliability of the findings, as well as in



effectively integrating the two types of data to draw meaningful conclusions. Despite these challenges, the mixed-methods approach is highly valued for its ability to provide a deeper and more holistic understanding of complex research questions, making it a powerful tool for credible and thorough investigations. By employing the strengths of both quantitative and qualitative methods, researchers can uncover insights that might be overlooked if only one approach were used, ultimately enhancing the overall quality and impact of the research.

**Table 3.1**

*Qualitative, Quantitative, and Mixed Methods Approaches Adapted from Creswell, J. W., & Creswell, J. D. (2018). Research design (5th ed.)*

<b>Tend to or Typically...</b>	<b>Qualitative Approaches</b>	<b>Quantitative Approaches</b>	<b>Mixed-Methods Approaches</b>
*Use these philosophical assumptions *Employ these strategies of inquiry *Employ these methods *Use these practices of research as a researcher	*Constructivist/advocacy/participatory knowledge claims *Phenomenology, grounded theory, ethnography, case study, and narrative *Open-ended questions, emerging approaches, text or image data *Positions him- or herself *Collects participants meanings *Focuses on a single concept or phenomenon *Brings personal values into the study *Studies the context or setting of	*Post-positivist knowledge claims *Surveys and experiments *Closed-ended questions, predetermined approaches, numeric data *Tests or verifies theories or explanation *Identifies variables to study *Relates variables in questions or hypotheses *Uses standards of validity	*Pragmatic knowledge claims *Sequential, concurrent, and transformative *Both open- and closed-ended questions, both emerging and predetermined approaches and both quantitative and qualitative data and analysis *Collects both quantitative and qualitative data *Develops a rationale for mixing *Integrates

	participants *Validates the accuracy of findings *Makes interpretations of the data *Creates an agenda for change or reform *Collaboration with the participants	and reliability *Observes and measures information numerically *Uses unbiased approaches*Employ s statistical procedures	the data at different stages of inquiry *Presents visual pictures of the procedures in the study *Employs the practices of both qualitative and quantitative research
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### 3.1.3 Research Design(s) / Strategy(ies)

Research designs emerged as a significant field of study in the 1960s (Akhtar, 2016), with Akhtar (2016) defined a research design as a structured plan that outlines how data will be collected, measured, and analysed to address research questions. Initially, the design is not restricted to specific types of data but focuses on identifying the most appropriate evidence needed to answer the study's questions effectively. Creswell (2014) further simplified this concept, by describing research designs as types of inquiry within qualitative, quantitative, and mixed methods approaches that provide specific direction for procedures in a research study. The choice of a particular research design depends on the nature of the research problem and its objectives, making it crucial to select a design that aligns with the study's goals. Each research design includes a sequence of methods tailored to gather and analyse data systematically (Walliman, 2011).

Walliman (2011) categorized research designs into various types, such as historical, descriptive, correlation, experimental, simulation, evaluation, action, ethnological, feminist, and cultural research designs, each suited to different research contexts and purposes. Creswell (2014) expanded on this by organizing research designs under three main approaches: qualitative, quantitative, and mixed methods. Quantitative designs

include experimental and non-experimental designs, which are often used to test hypotheses or examine relationships between variables. Qualitative designs, on the other hand, encompass narrative research, grounded theory, phenomenology, case studies, and ethnographies, which are ideal for exploring complex phenomena in depth (Creswell & Creswell, 2018).

Mixed methods designs, as described by Creswell and Creswell (2018), combine both qualitative and quantitative approaches and are divided into four main types: convergent, explanatory sequential, exploratory sequential, and multiphase designs, and they offer flexibility for researchers to address multifaceted research questions. Additionally, research designs play a critical role in ensuring the validity and reliability of findings, as they provide a clear framework for conducting studies systematically. For example, experimental designs are particularly useful for establishing cause-and-effect relationships, while descriptive designs are ideal for providing detailed accounts of phenomena. Ethnographic designs, often used in anthropology and sociology, allow researchers to immerse themselves in the culture or context being studied, providing rich, contextual insights. Ultimately, the selection of a research design is a foundational step in the research process, as it shapes the entire study's methodology and determines how data will be interpreted to contribute meaningfully to the field of knowledge.

#### **3.1.4 Data Collection Methods**

Data collection is one of the most important phases in conducting scholarly research, as it comes after defining the research problem. This step allows researchers to gather relevant and useful information for their study by using appropriate data collection tools. It also helps researchers address challenges, evaluate the outcomes of the study, and find credible answers to the research questions (Kabir, 2016). According to Walliman (2011), there are two main types of data to consider during this process: primary and

secondary data. Primary data refers to raw, uninterpreted information that is collected first hand, making it the closest representation of the truth (Walliman, 2011). In contrast, secondary data involves the analysis or interpretation of primary sources, often providing additional context or insights. There are various tools available for collecting data, such as tests, questionnaires, interviews, focus groups, and observations. By carefully selecting the right data collection tools, researchers can ensure that the information gathered is accurate, relevant, and sufficient to address the research problem.

First, questionnaires are the most widely used information gathering methods in research. According to Cohen et al., (2018), questionnaires can be unstructured (using only open-ended questions), structured (using only close-ended questions), or semi-structured (using both open-ended and close-ended questions). According to Nyumba et al. (2018), questionnaires can be used alongside other techniques within the context of a mixed-methods approach. Triangulating the results with two or more different methods, in a complementary way can offer an opportunity to draw robust conclusions.

Many researchers widely believe that questionnaires are easy to administer and analyze, allowing them to collect large amounts of data quickly. However, this view is challenged by criticisms questioning their validity and reliability, as highlighted by Dörnyei (2007). Moreover, tests are used to gather data that are numerical in nature. Cohen et al., (2018) note that “tests can be used to compare students: to see if a student has achieved a particular fixed criterion” (p. 663).

Arranging the items in the correct order is likely to result in a logically structured questionnaire that progresses smoothly, moving from simpler to more complex questions.. This is for the simple reason that it maintains the ease with which respondents will answer the questions (Dörnyei, 2003). As long as question formulation and wording are

concerned, simple language, as well as clear instructions, would help eliminate, or at least reduce, misunderstandings, thereby collecting clear and valuable data.

Another generally applied data collection method is the interview. Kvale (1996, p. 11) advocates that “the interview in research marks a move away from seeing human subjects as simply manipulatable and data as somehow external to individuals” (as cited in Cohen et al., 2018, p. 506). Interviews involve social interaction between two or more people, aiming to gain a deeper understanding of a phenomena, or address emerging questions in any area of study. Kumar (2011) states that semi-structured interviews are mostly used in educational research because they combine the features of both structured and unstructured questionnaires. The combination of these features allows to gain a large amount of data in different ways. However, interviews can generally be subject to bias and subjectivity, they are time consuming, and may require significant effort from the researcher.

More generally, Three types of interviews are commonly conducted. The structured interview is when the interviewer plans the questions and steps before the interview, trying to ask the same set of questions to everyone. The researcher then uses a ready-made interview plan that includes a list of close-ended questions that are meant to be asked (Dornyei, 2007; Kumar, 2011). However, the unstructured interview is more to be an open situation where much flexibility and freedom are required. Although the interviewer's speaking time should be limited, as they are allowed to ask follow-up questions to gather feedback, ensure understanding, and encourage responses. (Dornyei, 2007; Kumar, 2011). Significantly, no detailed interview schedule is prepared in advance, but the researcher can think of some open-ended questions.

The semi-structured interview, as the final type, is the most widely used interview type in applied linguistics. This type includes elements from both structured and

unstructured interviews. The researcher is directed and guided by the set of open-ended questions s/he prepares at the outset (this represents the “structured”) (Dornyei, 2007). However, The interviewee is given a lot of freedom and flexibility to expand on the questions they were first asked (which reflects the 'semi') (Dornyei, 2007).

Overall, data collection methods should be chosen based on the nature of the study, aligned with the research questions and objectives set by the researcher. Randomly selecting data collection methods often leads to the study being regarded as unreliable. When developing a methodological framework, it is crucial to follow a top-down approach, starting with the study's overarching goals and theoretical foundations before selecting data collection methods, rather than a bottom-up approach, which begins with methods and works backward to fit the study's purpose.

The choice of data collection instruments should be, chosen according to the aim of the study. Thereafter, it should be in line with the selected research approach. To ensure the research is credible and valid, the researcher needs to consider both the strengths, as well as the limitations of each tool.

### **3.1.5 Data Analysis Procedures**

Data analysis is a critical stage in the research process where answers to research questions begin to emerge. It is often considered one of the most challenging parts of conducting research. Kothari (2004, p.122) stated that collecting and processing data are crucial steps in scientific research and comparative studies. Processing involves editing, coding, classifying, and tabulating data for analysis. Analysis involves computing measures and finding patterns among data-groups. Some argue that analysis involves summarizing and organizing data to answer research questions. However, others such as Selltiz and Jahoda (1981) preferred to distinguish between processing and analysis. After

data collection methods, data analysis procedures represent another important phase in research methodology.

Dibekulu (2020) explained that, in simple terms, data analysis involves transforming raw data into meaningful insights and information that can be interpreted either qualitatively or quantitatively. It is examining the organized information to find natural facts or meanings. It includes dividing complicated elements into easier parts and then combining them in new ways to help explain them. Kothari (2004) mentioned that data analysis includes comparison of the outcomes of the various treatments upon the several groups and the making of a decision as to the achievement of the goals of research.

The analysis, irrespective of whether the data is qualitative or quantitative, may be to describe and summarize the data, identify relationships between variables, compare variables, identify the difference between variables and forecast outcomes as mentioned in the introductions. Generally, data analysis in research is divided into qualitative and quantitative data analysis. The data, after collection, has to be processed and analyzed in accordance with the outline laid down for the purpose at the time of developing the research plan. This is essential for a scientific study and for ensuring that we have all relevant data for making contemplated comparisons and analysis.

Mainly, quantitative data are analyzed through descriptive and / or inferential statistics. Descriptive statistics, a branch of statistics aimed at synthesizing, organizing, and presenting data, includes techniques such as measures of central tendency, variability (dispersion), and position, along with the use of tables, graphs, and other methods (Morcillo, 2023). The main difference between these two kinds of statistical procedures is that descriptive statistics calculate the mean, median, percentage, frequency, standard deviation, etc. In this way, they only describe the scores, numbers, or frequencies in a certain data set; while, inferential statistics provide the researcher with the ability to infer

and generalize the findings from a sample to a population, In addition to assessing statistical significance. Typically, inferential statistics are typically applied in studies that assign participants randomly and maintain strict control over the experiment, in order to support valid conclusions about cause and effect.

In contrast, Qualitative data is approached in a distinct way because the researcher plays an active role and may impact the results derived from the data. Therefore, following a structured process is essential for drawing valid and as unbiased conclusions as possible. According to Chelli (2016), the researcher should first familiarize him / herself with the data by means of reading, reviewing, and listening. Subsequently, data needs to be transcribed, organized, and codified. This can be achieved by highlighting, using words, numbers, and other methods. Once this step is completed, it becomes easier to recognize themes and create temporary categories. The final step is to link the categories, identify possible explanations, and present the findings.

Qualitative approaches are incredibly diverse, complex, and thematic analysis should be seen as a foundational method for qualitative analysis (Holloway & Todres, 2003). It is the foundational qualitative analysis method that researchers are encouraged to learn first, as it equips them with essential skills applicable to various other qualitative analysis techniques. Indeed, Holloway and Todres (2003) highlighted “thematizing meanings” as one of the few common core skills in qualitative analysis. In line with this, Boyatzis (1998) described it not as a standalone method but as a versatile tool that can be applied across various analytical approaches. Similarly, Ryan and Bernard (2000) locate thematic coding as a process performed within ‘major’ analytic traditions (such as grounded theory), rather than a specific approach in its own right. We can argue that thematic analysis should be considered a method in its own right.



A common method for examining quantitative data involves utilizing descriptive statistics and inferential statistical techniques (Gomez, 2013). Bhandari (2023) noted that descriptive statistics summarize and organize characteristics of a data set. A data set is a collection of responses or observations from a sample or entire population. These are procedures to describe, summarize, and present a set of data

Thematic analysis is a widely used method for examining qualitative data. It involves identifying and interpreting patterns or themes within the data, allowing researchers to explore and better understand underlying ideas, experiences, or behaviors. This method often leads to new insights and deeper understanding (Boyatzis, 1998; Elliott, 2018; Thomas, 2006).

However, it is essential that researchers remain aware of their own biases and avoid allowing personal assumptions to influence the identification of key themes (Morse & Mitcham, 2002; Patton, 2015). In addition, the process typically follows a six step designed to enhance the reliability and credibility of qualitative research. While grounded in Braun and Clarke's (2006) original framework, the revised approach offers greater clarity and structure, especially in its later stages. These steps help researchers move effectively from raw data to a well-developed conceptual model by focusing on theme development, interpretation, and framework construction. The six steps include:

- Transcription, familiarization with the data, and selection of quotations
- Selection of keywords
- Coding of the data
- Development of themes
- Interpretation and conceptualization of keywords, codes, and themes
- Creation of a conceptual model

In the other hand, Braun and Clarke (2006) described thematic analysis as particularly valuable when examining texts such as interviews, surveys, questionnaires, and focus group discussions, helping to reveal significant themes that contribute to answering research questions. Through both general data analysis procedures descriptive statistics and thematic analysis, researchers can gain a deeper understanding of their data and draw meaningful conclusions.

Among the wide range of data analysis methods accessible to qualitative researchers, narrative analysis, discourse analysis, and content analysis are the most widely used (Bhatia, 2018). In descriptive studies, thematic analysis is frequently employed in analyzing interviews. According to Cohen et al. (2018), this technique has three main features: The creation of units of analysis, the conduction of statistical analysis of those units, and the economical display of the outcomes.

Interestingly, Mayring (as cited in Cohen et al., 2018) maintained that the merits of this method and the reason behind its common use reside in its emphasis on linguistic features, contextual meaning, and its verifiability (through codes and categories). It is important to note that, in mixed methods designs, data analysis takes place within the quantitative and the qualitative approaches separately, as well as between the two preceding approaches (Creswell, 2009). Therefore, mixed methods analysis is viewed as a fruitful one since it combines insights and information from both qualitative and quantitative data.

### **3.1.6 Sampling Techniques**

Taherdoost (2016) argues that, to answer research questions, it is unlikely that researcher should be able to collect data from all cases. Therefore, a sample must be selected. The entire set of cases from which researcher sample is drawn in called the population. Since researchers often lack the time and resources to analyze the entire

population, they utilize sampling techniques to reduce the number of cases. A well-constructed sample, according to Dörnyei (2007), should accurately reflect the general characteristics of the entire population. These characteristics include attributes such as age, gender, ethnicity, educational level, and social class.

In general, sampling techniques can be divided into two types: Probability (random) sampling and non-probability (non-random) sampling. Before choosing specific type of sampling technique, it is needed to decide broad sampling technique (Taherdoost 2016). Probability sampling means that every item in the population has an equal chance of being included in sample. One method for conducting random sampling is for the researcher to first create a sampling frame, and then use a computer program to randomly select a sample from that frame (Zikmund, 2002). Probability or random sampling provides the least bias but can be the most expensive in terms of time and effort for a given level of sampling error (Brown, 1947).

To select the sample, it seeks random selection, ensuring each individual in the population has an equal opportunity to be part of the study. Basically, this type of sampling is less often employed in applied linguistics because it “involves complex and expensive procedures that are usually well beyond the means of applied linguist” (Dörnyei, 2007). Probability samples are composed of several types, including Simple random sampling, systematic sampling, stratified sampling, cluster sampling, Multi-stage sampling.

The second type is non-probability sampling also known as non-random sampling Bhardwaj, (2019) defined it as a type of sampling where each member of the population does not have known probability of being selected in the sample. Non-probability sampling is a sampling method that uses non-random criteria like the availability, geographical proximity, or expert knowledge of the individuals you want to research in order to answer a research question. Also, it is used when the population parameters are

either unknown or not possible to individually identify. For example, visitors to a website that doesn't require users to create an account could form part of a non-probability sample. Note that this type of sampling is at higher risk for research biases than probability sampling, particularly sampling bias (Nikolopoulou, 2022). A key characteristic of these techniques is that they all reject the possibility of equal selection chances (Nikolopoulou, 2022)

In such situations, the intentional selection of participants by the researcher necessarily introduces the risk of bias. Therefore, the results cannot be generalized to a wider scope (population). The sample does not represent the full population either. Still, this category is mostly employed in applied linguistics because it is less complicated and inexpensive (Cohen et al., 2007). There are five common types of non-probability sampling techniques are convenience sampling, quota sampling, dimensional sampling, purposive sampling, and snowball sampling.

### **3.2 The Research Methodology for this Study: Choices and Rationale**

Kothari (2004, p.1) stated, "it is actually a voyage of discovery", and he described research as a journey of discovery and exploration. In this journey, researcher has to follow a specific research methodology in order to continue making progress effectively. Also, The Advanced Learner's Dictionary of Current English lays down the meaning of research as "a careful investigation or inquiry specially through search for new facts in any branch of knowledge." Redman and Mory define research as a "systematized effort to gain new knowledge." Some people consider research as a movement, a movement from the known to the unknown (Kothari, 2004, p.1).

Regarding the reseach, it has specific objectives and aims. The purpose of research is to discover answers to questions through the application of scientific procedures. The main aim of research is to uncover hidden truths that have not yet been discovered. While

each research study has its own specific purpose, research objectives can be categorized into several broad groupings as follows (Kothari, 2004).

1. To gain familiarity with a phenomenon or to achieve new insights into it (studies with this object in view are termed as exploratory or formulative research studies);
2. To portray accurately the characteristics of a particular individual, situation or a group (studies with this object in view are known as descriptive research studies);
3. To determine the frequency with which something occurs or with which it is associated with something else (studies with this object in view are known as diagnostic research studies);
4. To test a hypothesis of a causal relationship between variables (such studies are known as hypothesis-testing research studies).

Conducting a study demands framing it methodologically by making a variety of decisions that depend on the nature of the study as well as the researcher's aims. For this reason, we endeavor to clarify the rationale behind the methodological decisions made for our study.

### **3.2.1 Research Paradigm**

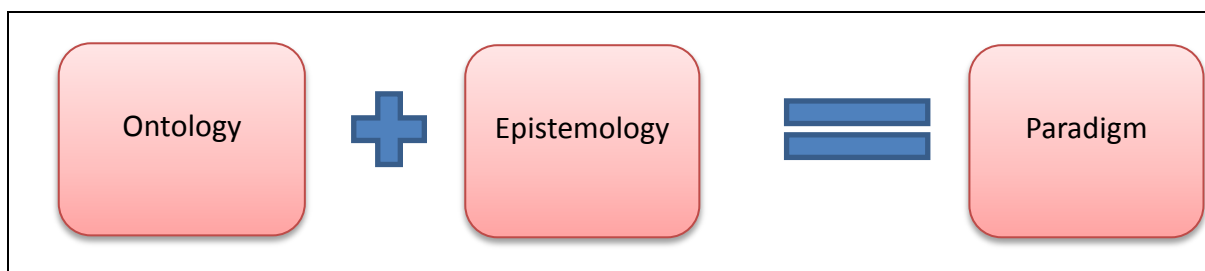
A paradigm is a worldview or framework through which knowledge is filtered (Kuhn, 1962; Lincoln, Lynham, & Guba, 2011) ; It is a fundamental viewpoint that encompasses a set of underlying assumptions shaping and directing the entire research process (Leavy 2017, p). Paradigms are often difficult to see because they are taken for granted (Babbie, 2013 as cited in Leavy 2017). Consider the old saying "I don't know who discovered water, but I doubt it was the fish." Paradigms become the lenses through which research is conceived and executed, and thus they are often difficult to see. I think of paradigms as sunglasses, with differently shaped frames and differently colored lenses. When you put on a pair, it influences everything you see. Thus, paradigms are important to

acknowledge because the beliefs that compose them guide our thinking and actions (Guba, 1990). “Ontological and epistemological belief systems are joined in paradigms” (Leavy 2017, p. 12).

Since the philosophical worldview is clearly the key element in shaping research frameworks, accordingly, the current research is situated within the interpretivism paradigm (Creswell, 2014; Schwandt, 1994). Undoubtedly, in this research, the choices made by the researcher were primarily influenced by the study's objective, which is to understand students' experiences and perceptions regarding the use of artificial intelligence (AI) in their writing process. This choice of this paradigm is primarily due to our objective of extracting meaning through our own thinking and cognitive interpretation of the data gathered from the context. Furthermore, our research aligns with interpretivism because this paradigm has the capacity to provide the appropriate methodology, which, as a result, directs us in selecting the research approach, design, and methods (i.e., methods of data collection, analysis, and sampling). For this reason, the selection of the qualitative approach best achieves the needs and purposes of this investigation

### Figure 3.1

*The components of a paradigm* LEAVY (2017, p. 12)



### 3.2.2 Research Approach

The research approach selected for this study aligns with the interpretivism paradigm. Given the nature of the study, the qualitative approach was considered the most

suitable for addressing the research questions. It was chosen for our research because it is appropriate for producing descriptive and rich data, offering a distinct perspective and in-depth understanding of the specific issue we wish to study, making it ideal for exploring perceptions and experiences. For instance, it requires the selection of the appropriate research design and data collection methods. Therefore, the current study employed the qualitative approach, with the aim to provide a comprehensive understanding of the research problem, as well as exploring the attitudes of both teachers and students towards the use of artificial intelligence (AI) in the writing process.

### **3.2.3 Research Design / Strategy**

After determining the research approach and paradigm, selecting methodological decisions becomes easier. The current study follows a qualitative approach and Thus employs the qualitative strategies. Therefore, a case study is adopted as a research design within which the study is conducted. More specifically, concerning the limited scope of our research, a case study serves the intended purpose by concentrating on achieving a deeper understanding of the topic under investigation, and it also allows collecting data in natural settings. These advantages are in accordance with the overall perspective on the orientation of this research as well as discovering the teachers' and students' attitudes regarding the use of this strategy.

Clearly, the nature of the inquiry is what underlies our choices, which, in turn, conform to the research requirements and provide a comprehensive analysis of the research problem. This means that choosing a research design is important because it has a direct impact on determining what comes next in a research process (e.g., data collection methods, analysis and sampling procedures). and to provide a comprehensive analysis of the research problem.

Accordingly, Denscombe (2010) defined research design as a plan of action used to achieve a specific goal. In a recent and more detailed definition of research design, Joshi (2019) noted that, "It is the overall plan that deals with the aspects of complete design from the study type, data collection approaches, experimental designs, and statistical approaches for data samples" (p.70). As Kumar (2011) stated, the research design has two main functions:

- Conceptualise an operational plan to undertake the various procedures and tasks required to complete your study;
- Ensure that these procedures are adequate to obtain valid, objective and accurate answers to the research questions.

### **3.2.4 Data Collection Methods**

Anything that becomes a means of collecting information for your study is called a 'research tool' or a 'research instrument', for example observation forms, interview schedules, questionnaires and interview guides. The construction of a research instrument is the first 'practical' step in carrying out a study. You will need to decide how you are going to collect data for the proposed study and then construct a research instrument for data collection (Kumar 2011). Regarding the current research, two data collection tools were chosen in the course of collecting and gathering data. student questionnaires and teacher interviews are common tools for collecting data. Questionnaires help to gather students' thoughts and experiences in their own words. Interviews with teachers provide deeper insights into their views and teaching practices. These methods help researchers understand the topic from different angles.

#### **3.2.4.1 Questionnaire**

One of the data collection tools chosen to collect the necessary data to answer the research questions under the current study was the questionnaire.



#### **3.2.4.1.1 Aim and Structure.**

This method was designed to collect concise and accurate data regarding students' perceptions of using artificial intelligence (AI) tools in academic writing. It aimed to explore the various challenges students face, the perceived usefulness of these tools, and the ways they engage with AI-assisted writing. Crucial to the purposes of this study, the semi-structured questionnaire was mainly developed to gain a detailed understanding of students' experiences, attitudes, and concerns related to AI tools. To achieve this, a semi-structured questionnaire was administered to Master One students, use a combination of question types to gather comprehensive data. This procedure was used to avoid any ambiguity or misunderstanding.

The present questionnaire consists of two sections which combine a mixture of Likert-scale questions, multiple-choice questions (MCQs), and open-ended questions where the students were asked to explain their responses in their own words. Is composed of two sections as follows:

**Section one:** perceptions and experiences with academic writing among EFL students.

**Section two:** EFL students' perceptions towards using artificial intelligence (AI) tools in academic writing.

**Table 3. 2***The structure of the student questionnaire sections and objectives*

Sections	items	Content	Objectives
Section one	1 - 3	academic writing	To explore the perceptions, challenges, and experiences of EFL students regarding academic writing, including their attitudes, writing practices, and the difficulties they encounter during the writing process.
Section two	1 - 17	artificial intelligence	To investigate how EFL students perceive the integration and use of Artificial Intelligence (AI) tools in academic writing, including their perceived benefits, concerns, and the impact of such tools on their writing development and academic integrity.

**3.2.4.1.2 Validation and piloting.**

The validation and piloting stages are essential in any research study, as they help ensure the reliability of the study, the credibility of the results, and the effectiveness of the chosen data collection methods before their full application. Since certain responses and interpretations could not be predicted in advance, a preliminary version of the questionnaire was validated by four teachers three from other universities (university of Larbi Tebessi-Tebessa, university of Ibn Khaldoun Tiaret, university of Kasdi Merbah Ouargla) and one from our own “the university of Biskra”, over the course of four days.

In an effort to create a logically structured and smoothly flowing questionnaire, their remarks regarding the layout, the wording of instructions, and the formulation of questions were taken into account. Also, the questionnaire was sent as a Word document via email to four teachers who were purposefully selected for the validating stage. All participants confirmed the overall clarity and relevance of the items, reporting no significant issues. However, one of the teachers suggested removing several questions and adding new ones to make the analysis process more manageable and effective. Based on this feedback, three questions (Q1, Q2, and Q3) were removed, and six new questions were added.

Additionally, the questionnaire was piloted with a small group of six EFL students from the target population on March 10, 2025. After obtaining oral consent from the students, they were asked to answer the questionnaire and provide feedback during a classroom session. The preliminary trial aimed to identify any unclear or confusing items, review the overall flow and structure of the questionnaire, and evaluate whether the questions successfully captured the intended data. Based on the insights gained during this stage, further adjustments were made to improve question clarity and enhance the instrument's reliability. As a result, none of the students reported any issues or irrelevancies. Their input also contributed to refining the sequence of the questions to ensure a logical and smooth flow. After these adjustments, the final version of the questionnaire consisted of 20 questions. This version is included in Appendix 3. The final version of the questionnaire was then submitted to the research supervisor, who reviewed and approved it for full distribution.

#### ***3.2.4.2 Population and Sampling Technique***

To collect relevant information and data needed to answer the research questions, the researcher worked with EFL students. The population of this study Master One students

in the English department at Biskra University, the researcher decided with the supervisor to deal with thirty (30) who have been chosen randomly. This population was chosen because the research questions can best be answered by students who have been taught how to express ideas and structure their academic writing, but who still face difficulties in using the language correctly. The participation of academic writing teachers is also important, as their views and experiences help provide a clearer understanding of the challenges explored in this study.

Accordingly, purposive sampling technique was used, as “its main idea is to select participants based on specific criteria deemed important for particular studies.” (Hoadjli, 2016, p. 52). Participants were chosen according to characteristics relevant to the research questions. This ensured that they had direct experience with the topic, and it help make the findings more relevant and credible. Purposive sampling is commonly used in case study methodology because the aim of generalization is not pursued by this design, which is typically qualitative in nature. “It operates on the principle that we can get the best information through focusing on a relatively small number of instances deliberately selected on the basis of their known attributes (i.e. not through random selection.” (Denscombe, 2010, p. 34).

#### **3.2.4.3 Interview**

The teachers' interview was another data collection method used in this study. However, the study was mainly intended to target the teachers responsible for the academic writing course.

##### **3.1.4.3.1 Aim and Structure.**

The general aim of this interview in the main study was to collect in-depth and detailed information directly from participants to gain a deeper understanding of their experiences, opinions, beliefs, or perspectives related to the research topic. With teachers'

interview, it aimed to explore their perspectives on students' use of AI tools in academic writing, the ways how these tools are being used, their effectiveness in enhancing students' writing skills, and the potential challenges or drawbacks students encounter when relying on such technologies.

With teachers' interview were also conducted to collect the feedback and understand the perceptions of EFL teachers of Biskra University regarding the use of AI tools in academic writing, particularly in supporting first-year EFL master students improving their academic writing performance. With the guidance of our supervisor, two face-to-face interviews were conducted with teachers who showed a genuine interest in the research topic and agreed to participate and but did not consent to being recorded, except one teacher. In addition, two teacher provided responses through a written interview sent via email. Since this interview was semi-structured, it was guided by a set combination of 9 open-ended questions and 1 close-ended questions.

**Table 3.3**

*The questions used in the interview and the justification for their selection*

Questions	objectives
Q1	To assess the general quality and competence of students' academic writing skills.
Q2	To determine the frequency of AI tool usage among students.
Q3	To identify the positive impacts of AI on students' writing quality.
Q4	To examine any drawbacks or challenges AI may introduce in students' writing.
Q5	To understand the potential influence of AI tools on students' ability to write independently.
Q6	To identify difficulties students may encounter when using AI tools
Q7	To explore opinions on incorporating AI tools into formal academic writing education.
Q8	To gather suggestions for promoting responsible and balanced use of AI tools.
Q9	To discover any adaptations made by instructors in response to the use of AI tools.
Q10	To identify ethical issues related to students' use of AI tools in academic work

#### **3.1.4.3.2 Validation.**

The interview did not include any specific sections or titles, as it was designed specifically for this research. Initially it was accompanied by the opinionnaire and the interview validation form to ensure the clarity and relevance of the questions.

Before beginning in the validation period for the teachers' interviews, the researcher sends a request via email to obtain written consent from the teachers, who responded without hesitation. The validation was conducted over four days and included four teachers, the interview was validated by four teachers three from other universities (University of Larbi Tebessi-Tebessa, university of Ibn Khaldoun Tiaret, university of Kasdi Merbah Ouargla) and one from our own "the university of Biskra". In fact, it was carried out to ensure the clarity and relevance of the questions by testing them beforehand with experts.

The interview was sent as a word document via email to four teachers who were purposefully selected for validation. All participants confirmed the overall clarity and relevance of the questions, reporting no significant modifications. However, two teachers recommended reducing the number of questions to facilitate a more manageable analysis. Based on their feedback, the order of three questions (Q1, Q2, Q13) was also refined to ensure a logical and smooth flow. After these changes, the final version of the teachers' interview included 10 questions.

With the supervisor's approval, and due to time constraints as well as the limited availability of teachers and their busy schedules, we proceeded directly with conducting the interviews without a piloting phase. The final version of the interview is provided in Appendix 4.

### **3.1.5 Data Collection Procedures**

In this study, the questionnaire aimed to collect students' opinions and experiences related to the research topic. In addition, interviews with teachers aimed to gain deeper insights from their professional perspectives. Both of these methods were designed carefully to match the objectives of the study and were carried out after obtaining the necessary permissions.

#### ***3.1.5.1 Data Collection Procedures for Questionnaire***

Based on ethical considerations, the questionnaire was administered only after obtaining oral consent from the students. The final version was distributed during the second semester of the 2024/2025 academic year, specifically from March 14 to 21. The distribution process took place in two phases to meet time limits and match student availability. Initially, 12 printed copies were distributed during class time. Due to the limited student attendance at the university, the researcher also shared a Google Form, which proved to be a more effective method for collecting the remaining data. Despite using various distribution methods, the process remained smooth and efficient, as all materials were prepared in advance and students were cooperative throughout. To improve response rates.

#### ***3.1.5.2 Data Collection Procedures for Interview***

Regarding ethical considerations, and with the assistance of our supervisor, meetings were scheduled with four academic writing teachers who agreed to participate but did not consent to being recorded, except one teacher. Interviews were conducted only after each teacher received an information letter, consent letter, and teachers' interview questions. The final version was distributed during the second semester of the 2024/2025 academic year, specifically from March 11 to 16 April.

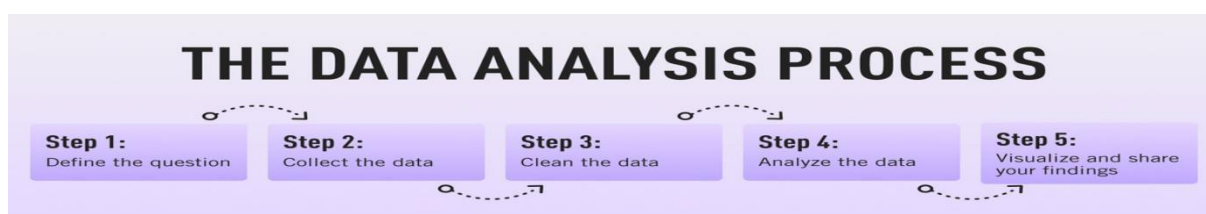
Initially, both teachers were interviewed separately. Due to time constraints, as well as the limited availability of teachers and their busy schedules, as mentioned earlier, the researcher also shared two Word documents via email with the other teachers, and this resulted in four responses. Despite using different distribution methods, the process remained smooth and efficient, as all materials were prepared in advance and teachers were cooperative throughout.

### 3.1.6 Data Analysis Procedures

According to Merriam (1988) and Marshall and Rossman (1989), data collection and data analysis must be a simultaneous process in qualitative research (as cited in Creswell, 2009). The data analysis phase is considered a crucial and comprehensive process that involves moving from a superficial understanding to the deep interpretation. It also includes extracting all relevant information and drawing conclusions from the collected data (Creswell & Creswell, 2018). While there are differences between quantitative and qualitative data analysis in terms of statistics and words, they rely on fixed main steps for analysis, which vary depending on the researchers' orientations (Miles, Huberman, & Saldaña, 2014). These steps can be clearly summarized in the following figure:

**Figure 3.2**

*The Main Stages of Data Analysis HILLER ( 2023).*



This process is ultimately carried out through a range of specific procedures and methods, which must be selected based on the nature of the study, the research questions, and the type of data being collected. Dye ( 2025) defined the qualitative data analysis as



the process of gathering, organizing, and interpreting non-numerical data to uncover patterns, themes, and insights. It helps businesses and researchers make sense of open-ended responses, interviews, and other unstructured data sources. In order to make sense of the data previously collected during the research journey. in this phase, the researcher should be carried out through planned and systematic procedures and steps. Regarding this matter, Marczyk et al. (2006) noted the following words: without a well-established procedure, data can easily become disorganized, uninterpretable, and ultimately unusable. Based on the above, The researcher aimed to explain the data analysis process in the following two sections.

#### ***3.1.6.1 Data Analysis Procedures for Questionnaire***

Once, the questionnaire is administered followed by an analysis of the collected data. Due to the fact that the questionnaire constructed for this study was semi-structured, it consisted of both non-numerical and numerical data. While the former was analyzed using descriptive and thematic analysis, the data was analyzed using Excel. It is the most commonly used software package in applied linguistics due to its practicality, ease of use, and efficiency. It assisted the researcher with the issue of how the data will be logged, entered, transformed (as necessary), and organized into a database that will facilitate accurate and efficient statistical analysis (Marczyk et al., 2006, p.198).

Using Excel (version 10), all the statistical analyses were performed, and the resulting descriptive analysis are presented in the following chapter (Chapter Four). As the term suggests, descriptive analysis were used to logically summarize and represent the collected data, making it easier to interpret and understand.

### ***3.1.6.2 Data Analysis Procedures for Interview***

Considering that semi-structured interviews were written in nature, the first step to their analysis is the transcription phase. At last, thematic analysis will be carried out on the said software to make relationships between the categories identified in the coding process.

This section provides a detailed explanation of the thematic analysis process applied to the interviews. Boyatzis (1998) it is first a requirement to provide a brief definition of thematic analysis “Thematic analysis is a method for identifying, analyzing, and reporting patterns (themes) within data. It minimally organizes and describes your data set in (rich) detail. However, it also often goes further than this, and interprets various aspects of the research topic.” (Braun & Clarke, 2006, p.6).

Thematic analysis differs from other analytic methods that seek to describe patterns across qualitative data such as thematic discourse analysis, thematic decomposition analysis, IPA and grounded theory. Both IPA and grounded theory seek patterns in the data, but are theoretically bounded. IPA is wed to a phenomenological epistemology (Smith, Jarman, & Osborn, 1999; Smith & Osborn, 2003), which gives experience primacy (Holloway & Todres, 2003), and is about understanding peoples everyday experience of reality, in great detail, so as to gain an understanding of the phenomenon in question (McLeod, 2001).

It is important to determine the type of analysis you want to do, and the claims you want to make, in relation to your data set. For instance, you might wish to provide a rich thematic description of your entire data set, so that the reader gets a sense of them predominant or important themes. In this case, the themes you identify, code, and analyze would need to be an accurate reflection of the content of the entire data set. Some of the phases of thematic analysis are similar to the phases of other qualitative research, so these stages are not necessarily all unique to thematic analysis.

The process starts when the analyst begins to notice, and look for, patterns of meaning and issues of potential interest in the data this may be during data collection. Ryan and Bernard (2000) the endpoint is the reporting of the content and meaning of patterns (themes) in the data, where themes are abstract constructs the investigators identify before, during, and after analysis” (p.780), (Braun & Clarke, 2006, p.15)

### **Conclusion**

This chapter primarily focused on the essential methodological elements required for the practical side of any investigation. It began by providing a theoretical background to research methodology, which covered various aspects such as research paradigms in educational research, research approaches, research design(s) and strategy(ies), data collection methods, data analysis procedures, and sampling techniques. Additionally, this chapter shed light on the methodology of this study, outlining the decisions made by the researcher the selected research paradigm, approach, design and data collection methods were respectively mentioned. This chapter discussed the data collection procedures for both the questionnaire and the interview, and provided a thorough explanation of the data analysis procedures for each. By carefully considering these steps.

# Chapter Four

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**Chapter Four: Fieldwork, Discussion and Data Analysis**

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## **Introduction**

This chapter presents the practical part of the study, which aims to explore the perceptions of master EFL students on the use of Artificial intelligence in writing as assisting tools. In this attempt, the researcher aimed at providing an inclusive analysis throughout analyzing data. This will provide us with insights on the students' behaviors and perceptions regarding AI use in achieving the writing tasks assigned to them. In addition, the researcher has interviewed teacher for more insight and data about using AI tools. Thus, this will give us an inside view on the usage of such tool and a grounding to take critical decision about AI as to whether we should accept them as tools of research or not. It is noteworthy that the researcher opted for a thematic analysis in understanding and interpreting the data.

## **4.1 Results and Discussion**

In this part, the researcher aims to present the results that were collected from the data collection methods. Then, these findings will be analyzed by discussing their relevance to the research questions and aim.

### **4.1.1 Results of the Questionnaire**

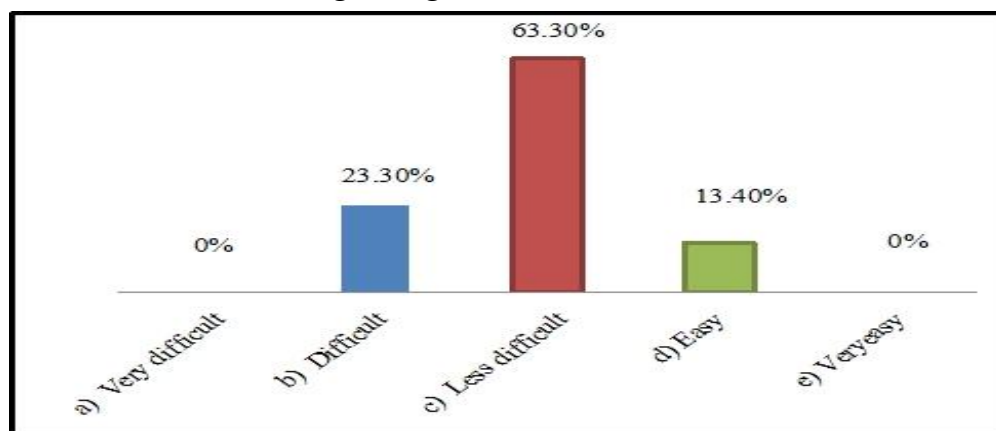
#### **Analysis of Students' Questionnaire**

#### **Section One: Perceptions and Experiences with Academic Writing among EFL Students**

**Q1.** How would you describe your overall experience with academic writing in English?

**Figure 4.1**

*Experience with Academic Writing in English*



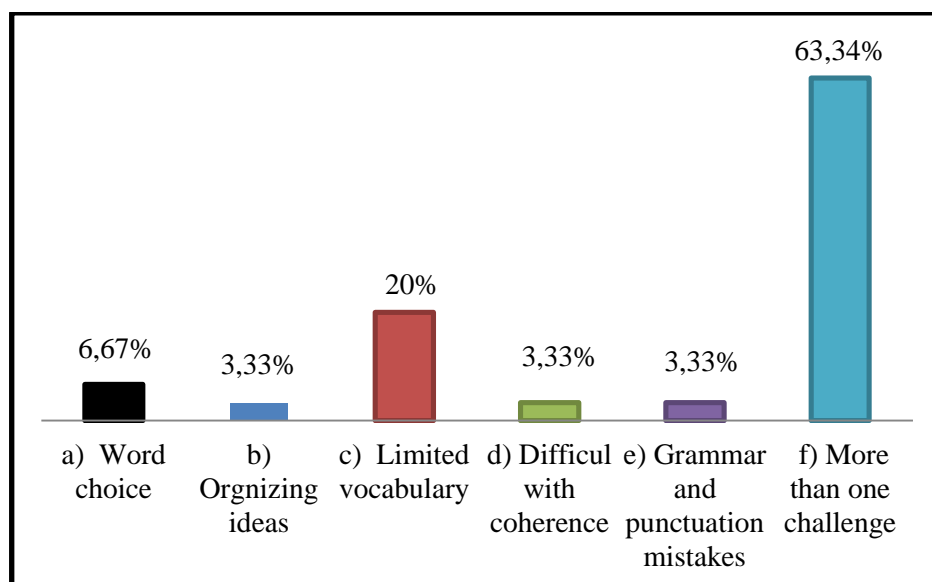
The first question attempts to shed the light on the experience of writing in English. Thus, the responses varied accordingly. Figure 4.1 reveal that the majority of students (63%) consider writing in English to be less difficult. Small proportions (23%) consider it difficult. Notably, no students rated it as very difficult or very easy, and only a small percentage (13.4%) consider writing in English to be easy.

The aforementioned results suggest that, while most students do not perceive academic writing as extremely difficult, they also do not believe it is an easy skill. Indeed, nearly a quarter of respondents still find it difficult, highlighting a constant need for assistance or guidance. This phenomenon may be associated with students' use of AI. Theoretically, this is consistent with Vygotsky's motor performance theory: AI tools act as digital aids for language learners, which allows them to surpass their level of autonomy.

**Q2.** What specific challenges do you face when writing academic texts in English?  
(Multiple answers are possible).

**Figure 4.2**

*Challenges face When Writing Academically in English*



**Others:**

- To think about ideas that are relevant and explain in depth

Figure 4.2 above present the types of difficulties encountered by learners when attempting to write. Examining them separately, it can be seen that three types of difficulties are present in a similarly low percentage (3.33%): grammatical and punctuation errors, and difficulties with coherence and organization of ideas. Furthermore, a small proportion (6.67%) reported difficulties with word choice. Finally, the highest percentage (63.34%) represents several of the difficulties mentioned above.

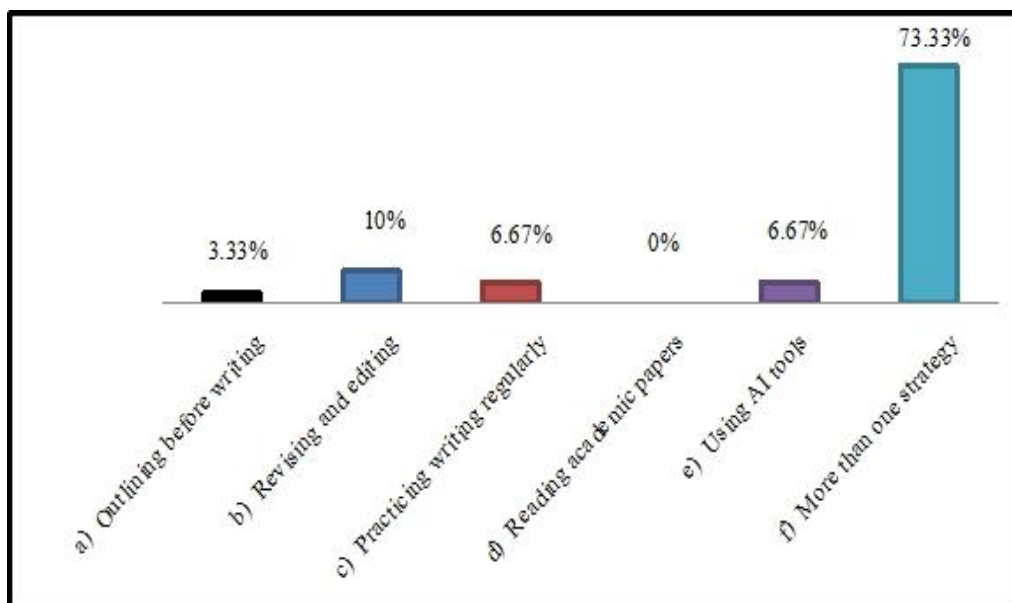
These results are consistent with those of Hyland (2003) and Hinkel (2004), who agree that writing requires a synthesis of skills. This is where AI plays an assistant role throughout the process, as Lee et al. (2024) pointed out.



**Q3.** Which strategies do you use to improve your academic writing? (You can choose more than one answer.)

**Figure 4.3**

*Strategies Use to Improve Their Academic Writing*



**Others:**

- Using mind map
- Brainstorming ideas and recalling previous knowledge

Figure 4.3 above present the types of difficulties encountered by learners when attempting to write. Examining them separately, there are three types of difficulties present themselves with a similarly low percentage (3.33%): grammar and punctuation errors, difficulties with coherence, and the organization of ideas. Furthermore, a small proportion (6.67%) reported difficulties with word choice. Finally, the highest percentage (63.34%) represents several of the difficulties mentioned above. According to Table and Figure 3.3, an overwhelming majority (77.33%) indicated using multiple strategies to improve their academic writing. Very few selected individual strategies such as revision and editing (10%), regular practice (6.67%), or the use of AI tools (6.67%). No one chose to read

academic articles. These figures indicate that students favor a single method and combine several approaches. The relatively low mention of AI as a distinct strategy may indicate underuse or a perception of AI as a complementary tool, rather than a primary one.

### Section Two: EFL students' Perceptions towards Using Artificial Intelligence (AI) Tools in Academic Writing

Please indicate your level of agreement with the following statements by selecting one of the options:

**SD:** Strongly Disagree     **D:** Disagree     **N:** Neutral     **A:** Agree     **SA:** Strongly Agree

**Q1.** I believe that artificial intelligence (AI) writing tools have improved my grammar and punctuation skills.

**Figure 4.4**

*Improve Their Grammar and Punctuation Skills*

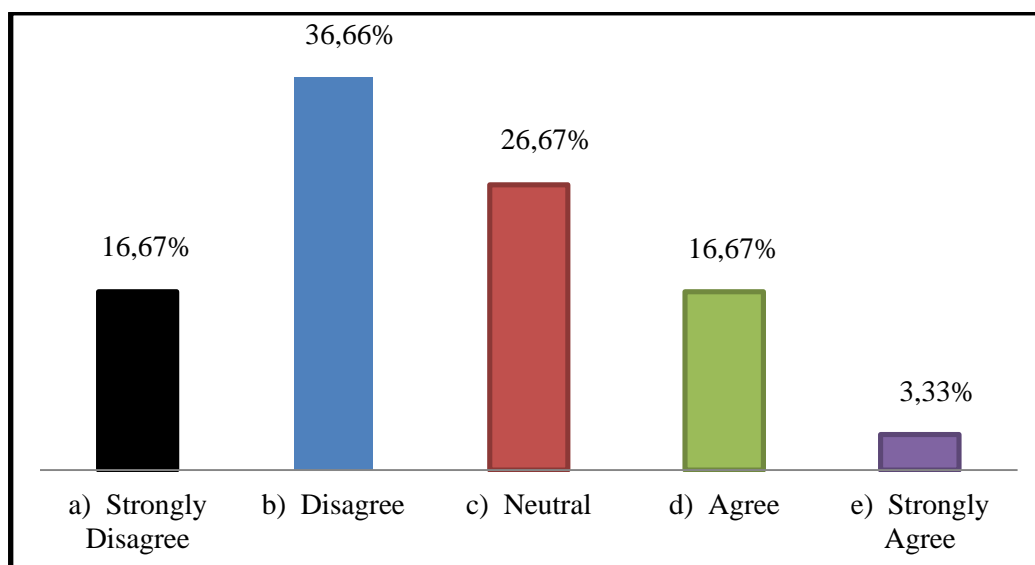


Figure 4.4 explores students' perceptions regarding the impact of AI tools on grammar and punctuation. According to the results, 36.66% of students disagreed with the statement that AI tools improve their grammar and punctuation, while 16.67% agreed. A considerable proportion (26.67%) remained neutral, while smaller percentages either strongly agreed (3.33%) or strongly disagreed (16.67%). These findings illustrate a

conflicted perception. While some students see the value of using AI for editing, a greater number remain doubtful or neutral about its effectiveness. This could reflect differences in familiarity with the tools, consistency of use, or writing skill level among students. This could also suggest that some learners continue to rely more heavily on traditional correction methods, or that they distrust automated suggestions for fear of inaccuracies.

From a sociocultural perspective, according to Vygostky's 1978 theory, AI tools can play a mediating role and support learning by providing immediate feedback. However, if learners ignore this role and use AI only to copy a written passage, it will not improve their writing style.

**Q2.** Artificial intelligence (AI) writing tools help me organize my ideas more effectively.

**Figure 4.5**

*Effectiveness of AI Tools in Organizing Ideas*

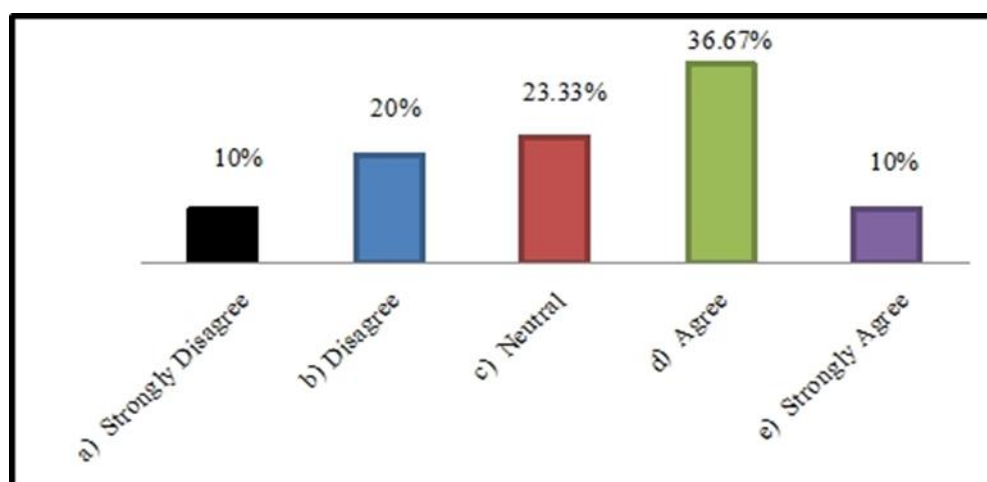


Figure 4.5 presents students' opinions on the extent to which is AI tools help them organize their ideas in their academic papers. The responses show that 36.67% of students disagree with the statement that AI improves the organization of ideas, while 26.67% remain neutral. Only 16.67% agree, 10% strongly disagree, and 10% strongly agree. These results reveal a similar trend to the previous table: students are more skeptical or neutral than supportive of AI's ability to facilitate the acquisition of advanced writing skills, such

as structuring. This is due to the widespread use of AI tools to facilitate grammar or structure. While best practice is to use them as guidance resources.

Furthermore, the low adoption rate among students reflects a limited perception of the usefulness of AI tools for content organization, which affects overall adoption and confidence. From the perspective of Vygotsky's zone of proximal development, organizing ideas is a higher-order skill that often requires guided support, such as teacher feedback, replaced by personalized AI tools that provide instant feedback when needed regarding writing gaps.

**Q3.** I feel more confident in my writing abilities when using artificial intelligence (AI) tools.

**Figure 4.6**

*Boosting Self-confidence with AI Tools*

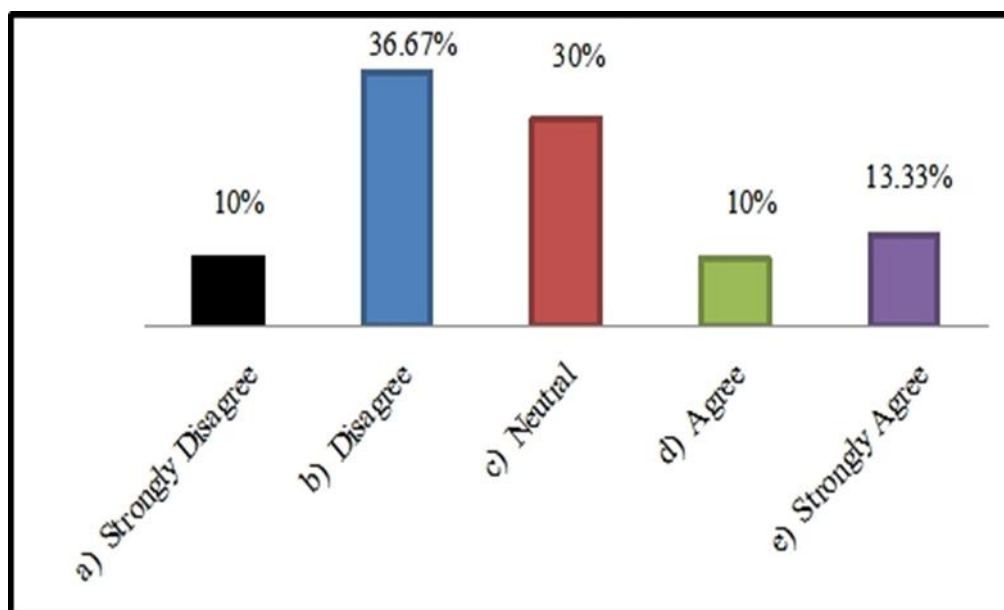


Figure 4.6 illustrate students' perceptions of the impact of AI tools on their confidence in academic writing. The data reveal that 23.33% of students agreed that AI tools increased their confidence, while 30% took a neutral position. Meanwhile, 26.67% disagreed, 13.33% strongly disagreed, and 6.67% strongly agreed. This demonstrates that

an approximate 40% proportion has shown disagreement or strong disagreement, indicating the limited impact and validity of AI on learners' self-confidence. The neutral 30% indicates some uncertainty, this is probably because of inconsistent results when using AI tools or a lack of consideration of the impact of these tools on their writing skills. Overall, the data demonstrate that confidence-building remains a partial or minimal effect of AI tools for most students.

**Q4.** I use artificial intelligence (AI) writing tools regularly for academic writing tasks.

**Figure 4.7**

*Regular Use of AI Tools for Writing Tasks*

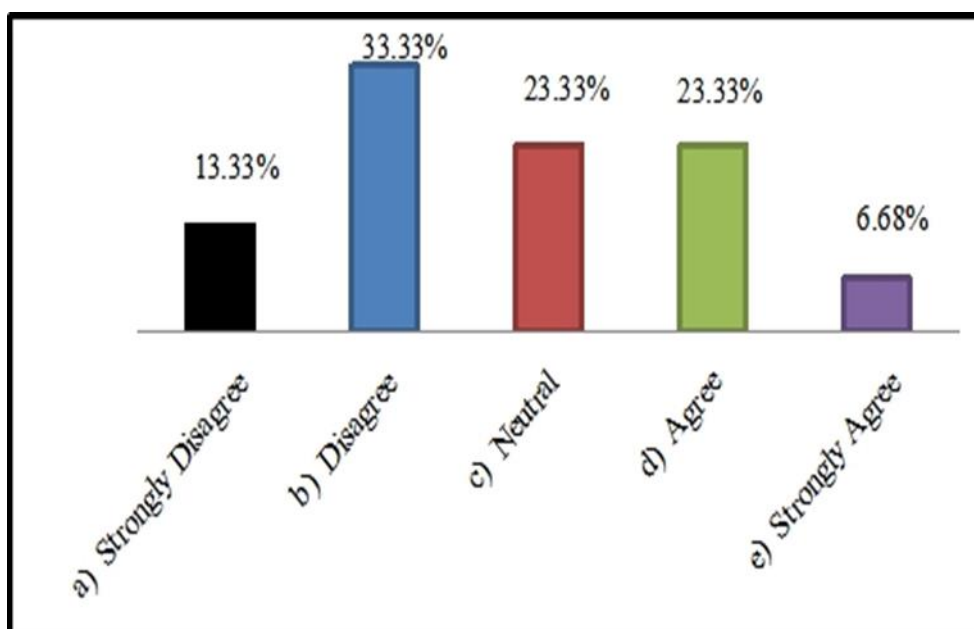


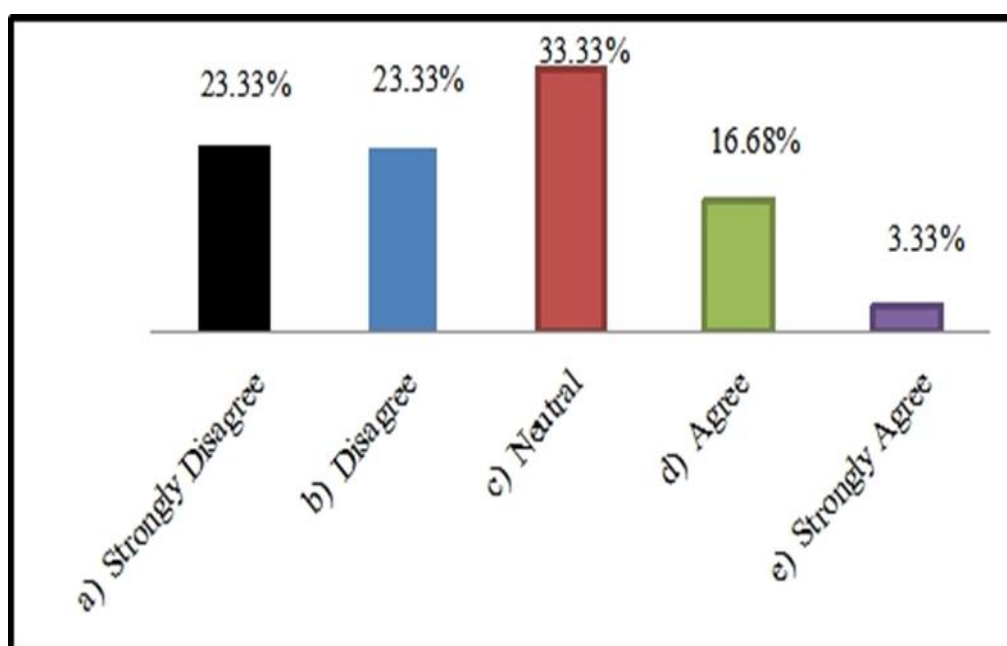
Figure 4.7 explore and illustrate students' overall perceptions of the usefulness of AI tools in developing their writing skills. According to the data, 40% of respondents agreed that AI tools helped them develop their writing skills, while 20% strongly agreed. Moreover, a total of 60% of students had a positive perception. In contrast, 16.67% disagreed, 10% strongly disagreed, and 13.33% remained neutral. These figures reveal a general trend of positive attitudes toward the role of AI in skill development, although a

considerable proportion remains skeptical or uncertain. The fact that more than a quarter of participants were neutral or negative reflects uneven experiences with AI tools: some may have benefited more than others may. That is depending on their choice of tool, writing level, or usage habits.

**Q5.** I prefer AI-assisted writing over traditional writing techniques.

**Figure 4.8**

*Preference for AI-Assisted vs. Traditional Writing*



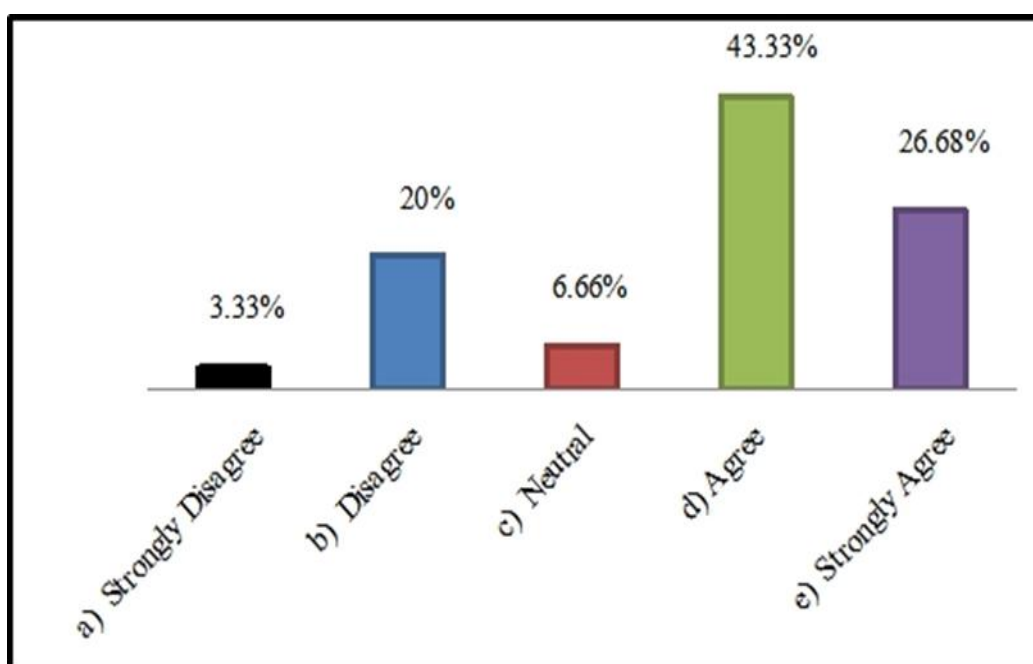
Graph 4.8 presents students' perceptions of how effective AI tools are in improving their vocabulary. The responses indicate a generally favorable view: 36.67% agreed that AI tools helped enhance their vocabulary, while 20% strongly agreed, making a combined 56.67% expressing positive perceptions. Additionally, 33.33% of the students were neutral, while 20% disagreed, and 10% strongly disagreed. The findings suggest that more than half of the learners view AI tools as a beneficial tool for vocabulary growth. That is attributed due to features in tools like Grammarly, Quillbot, and ChatGPT, which offer vocabulary enhancement suggestions, synonyms, and paraphrasing options. However, the significant percentage of disagreement and neutrality also suggests that a considerable

proportion of the students is not experiencing the same level of benefit, possibly due to differences in how they utilize the tools or in their proficiency levels.

**Q6.** I worry that relying on artificial intelligence (AI) writing tools may hinder my writing development.

**Figure 4.9**

*Impact on Writing Development from Relying on AI*



Graph 4.9 addresses and illustrate the student concerns regarding the possible negative effect caused by AI tools on their writing skill development. According to the results, 30% of participants strongly agreed and 43.33% agreed that AI would hinder their writing ability. This represents a total of 73.33% who expressed concerns. In comparison, 13.33% remained neutral and only 13.33% disagreed. This high degree of agreement indicates that the majority of students are aware of the dangers of over-reliance on AI technologies, which could limit their ability to write independently and potentially hinder their long-term development. These figures reveal an intriguing conflict: while many students derive short-term benefits from AI (as shown in the previous tables), they also

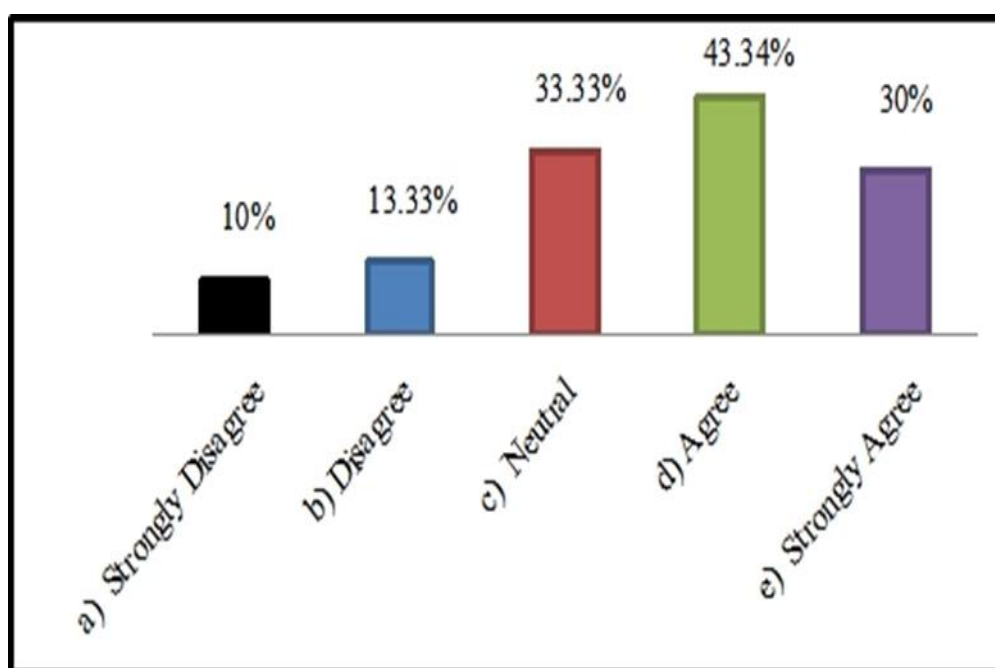
recognize that it can compromise their independence, critical thinking, and the learning of writing techniques.

These findings strongly align with Vygotsky's sociocultural theory particularly his warning that scaffolding must gradually fade to allow the learner to internalize skills and become independent (Vygotsky, 1978). AI tools can serve as useful scaffolds, but if students consistently lean on them without reflective engagement; their Zone of Proximal Development (ZPD) may collapse into a zone of over-dependence.

**Q7.** I worry that AI-generated text does not always reflect my own writing style.

**Figure 4.10**

*Reflection of AI Text on Writing Style*



Graph 4.10 demonstrates whether students believe that AI-generated text reflects their own writing style. The data shows significant 73.34% of participants believe that AI-generated content does not have to reflect their own ideas. 43.34% of students share this concern, and 30% strongly agree. In comparison, only 3.33% are neutral, 10% strongly



disagree, and 13.33% disagree. Based on these results, a large majority of students fear that AI output will weaken or replace their writing style and personal expression.

These findings are aligned by Vygotsky's sociocultural theory, they go in line with his notion that language is tied to identity construction and self-expression (Vygotsky, 1978). AI-generated outputs that prioritize correct and accurate passages over creativity can affect creativity in writing with the development of a personal writing style, especially if learners adopt suggestions without a critical sense.

**Q8.** Relying too much on AI writing tools may hinder my writing development.

**Figure 4.11**

*Dependence on AI Tools and Writing Growth*

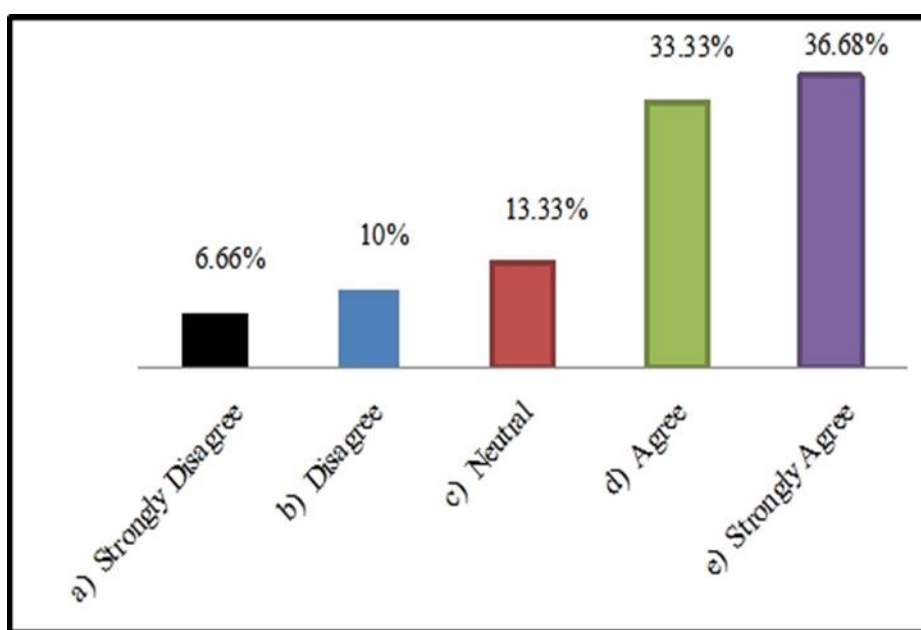


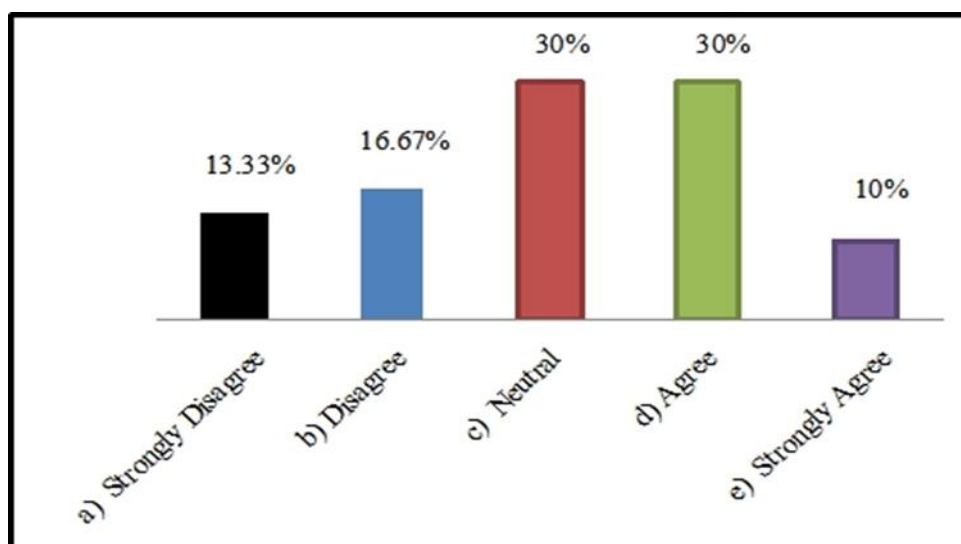
Figure 4.11 demonstrates whether students believe that AI-generated text reflects their own writing style. The data shows significant 73.34% of participants believe that AI-generated content does not have to reflect their own ideas. 43.34% of students share this concern, and 30% strongly agree. This clearly reflects a widespread perception among students that excessive reliance on AI tools can negatively impact their learning progress.

This concern likely stems from experiences in which AI tools have provided quick solutions that reduce the learner's need to engage deeply in the writing process, which may negatively impact their ability to independently develop skills such as critical thinking, style, and coherence. This data is consistent with Vygotsky's (1978) sociocultural theory, which emphasizes that external tools and aids are only effective if they support the learner within their zone of proximal development (ZPD). When AI becomes more of a substitute than a scaffold, it risks hindering development rather than supporting it.

**Q9.** AI-generated content is not always reliable for academic writing.

**Figure 4.12**

*Reliability of AI Content for Academic Writing*



Graph 4.12 presents students' perspectives on the reliability of AI-generated content for academic writing. The results show a contrast of opinions among the students. A significant percentage of 30%, of the students selected "Neutral," suggesting uncertainty about the validity of AI-generated content. Equally, 30% agreed that AI-generated content is not always reliable, and 10% strongly agreed. This goes to show that a total of 40% of the students express concerns about the reliability of AI-generated content. On the other

hand, 13.33% strongly disagreed, and 16.67% disagreed, which indicates that 30% of the students believe AI-generated content can be reliable.

We can interpret that data through the view of the sociocultural theory. Vygotsky's (1978) framework highlights the role of mediational tools in learning, and AI writing tools can be a source of mediation. However, the students' lack of confidence in the reliability of AI-generated content raises questions about its effectiveness as a valid mediational tool in academic writing. If students consider AI as unreliable, it may hinder the learning process and affect their willingness to fully engage with and utilize these tools.

Furthermore, the data highlights the critical importance of source evaluation skills in the age of AI. As Hyland (2003) and Hinkel (2004) argue, “academic writing necessitates not only linguistic competence but also the ability to critically assess and synthesize information”. Therefore, the concerns about the reliability of AI-generated content suggest that students are struggling with the challenge of evaluating AI as a source of information, which can have implications for academic integrity and the ethical use of AI tools. Sources and related content

**Q10.** AI writing tools may encourage plagiarism if not used properly.

**Figure 4.13**

*Plagiarism Risks without Proper Use of AI*

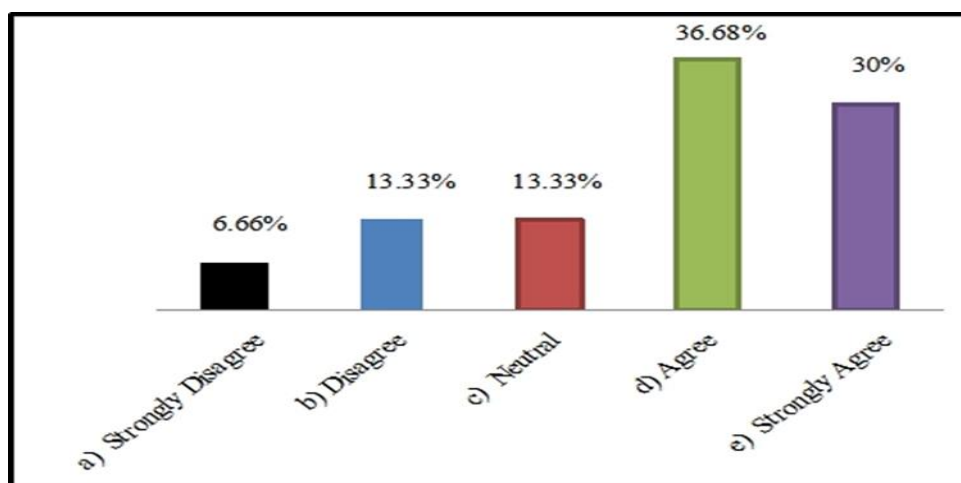


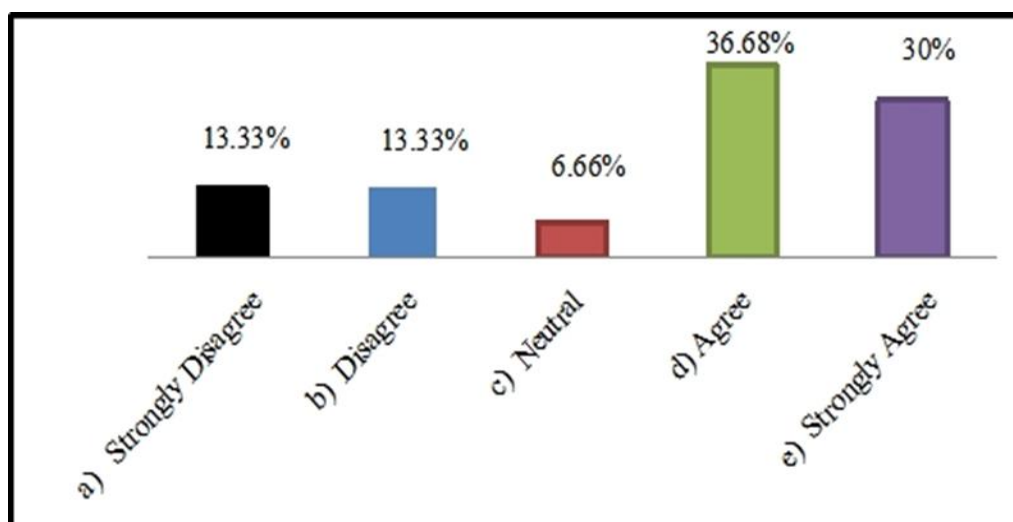
Figure 4.13 presents data on students' agreement or disagreement with the statement "AI writing tools may encourage plagiarism if not used properly." The results indicate that 6.66% of students strongly disagreed, 13.33% disagreed, and 13.33% were neutral. In contrast, a large majority of students expressed concern about the potential for plagiarism, with 36.68% agreeing and 30% strongly agreeing.

These results demonstrate students' awareness of the ethical issues raised by the use of AI writing tools in the classroom. The strong agreement among students regarding the likelihood of plagiarism underscores the importance of academic integrity, which is fundamental to both applied linguistics and higher education. Researchers such as Hyland (2003) and Henkel (2004) have drawn attention to the complexities of academic writing, which include not only linguistic proficiency but also ethical considerations such as giving appropriate credit and refraining from plagiarism. Students' responses indicate their awareness that AI methods may pose new challenges to these ethical dilemmas, making authorship difficult to identify and requiring careful handling to maintain academic integrity.

**Q11.** I believe that AI should be used with teacher guidance in academic writing.

**Figure 4.14**

*Need for Teacher Guidance in AI Tool Usage*



Graph 4.14 investigate and present students' opinions regarding whether AI tools should be used with teacher guidance in academic writing. The results show that 36.68% agreed, and 30% strongly agreed. This indicates that a total of 66.68% of students support the idea of guided AI use. Meanwhile, 13.33% strongly disagreed, another 13.33% disagreed, and 6.66% remained neutral. These findings clearly suggest that a strong majority of students recognize the importance of pedagogical oversight when using AI tools. This indicates that students are aware of the risks associated with unguided AI use, such as developing surface-level skills, misunderstanding content or even academic dishonesty if AI outputs are used without critical evaluation.

Theoretically, AI-assisted vocabulary growth aligns with Nation's (2001) concepts of generative usage, retrieval, and observable vocabulary acquisition. By encouraging students to recognize alternatives, find contextually appropriate synonyms, and experience different uses of words in diverse contexts, AI tools help students achieve these features.

Furthermore, according to Vygotskian sociocultural theory, AI tools can be viewed as mediating tools that provide linguistic support for students in moving from passive identification to active and productive application. However, the educational benefit of AI tools often depends on their purposeful and critical use, as Chai (2022) and Li et al. (2024) pointed out. Students' vocabulary development may remain superficial and tool-dependent if they rely on AI without consideration for word appropriateness, accuracy, or style. Thus, although most people acknowledged the benefits, the range of responses highlights the importance of incorporating the use of AI tools into structured reflective writing training.

### Table 4.1

### *The Sum of Students' Attitudes towards the Use of AI Tools in Academic Writing*

[illegible]

much on AI writing tools may hinder my writing development.	2	6.66%	3	10%	4	13.33%	10	33.33%	11	36.67%
9- AI-generated content is not always reliable for academic writing.	4	13.33%	5	16.67%	9	30%	9	30%	3	10%
10- AI writing tools may encourage plagiarism if not used properly.	2	6.66%	4	13.33%	4	13.33%	11	36.67%	9	30%
11- I believe that AI should be used with teacher guidance in academic writing.	4	13.33%	4	13.33%	2	6.66%	11	36.67%	9	30%

**Statement 1: I believe that artificial intelligence (AI) writing tools have improved my grammar and punctuation skills.**

The first statement investigated whether students believed that AI tools helped improve their grammar and punctuation. The numbers reveal that a clear majority rejected the idea that AI tools had substantially improved their grammatical accuracy. The high neutrality also suggests some hesitation, possibly because students experience correction without deep understanding.

This result supports Godwin-Jones (2018), who explains that AI tools often correct errors superficially without providing explanatory feedback, thus they fail to develop long-term grammatical competence. From a Vygotskian perspective (1978), mastering language skills requires scaffolded explanation and internalization, which automated suggestions alone cannot ensure.

**Statement 2: Artificial intelligence (AI) writing tools help me organize my ideas more effectively.**

Concerning idea organization,. The results suggest that nearly half found AI useful for structuring their thoughts, although a significant minority disagreed or stayed neutral.

This reflects Flower and Hayes's (1981) model of writing, where idea generation and planning are cognitive phases that can be scaffold externally. AI tools seem to play a positive cognitive role here, offering structure templates or logical sequencing that students appreciate. However, as Selwyn (2016) notes, technology adoption is always negotiated, meaning students accept some functions while resisting others.

**Statement 3: Boosting Confidence in Writing**

There is a reoccurrence of large neutrality rate again signals uncertainty about AI's psychological impact.in the same vein, Bandura's (1997) social cognitive theory genuine confidence emerges from successful mastery experiences, not merely external corrections. AI feedback lacks emotional variation and self-regulatory practice, which may explain why students do not associate it with increased self-confidence.

**Statement 4: Regular Use of AI Writing Tools**

Regarding the regular use of AI tools for academic tasks, 13.33% strongly disagreed, 33.33% disagreed, and 23.33% were neutral. Only 23.33% agreed and 6.66% strongly agreed. This indicates that almost half of the students do not incorporate AI writing tools into their academic practices regularly. As Luckin et al. (2016) observe, for AI to become embedded in learning, it must align closely with learners' perceived needs and contexts. The relatively low regular use suggests that students view AI tools as optional aids, not essential academic instruments.



**Statement 5: Preference for AI-Assisted Writing over Traditional Writing**

A significant proportion disagreed or strongly disagreed with preferring AI-assisted writing over traditional techniques, while only a small proportion agreed or strongly agreed, and while a considerable higher percentage remained neutral. This indicates a deep attachment to traditional writing methods, possibly tied to personal control and authenticity. Pennycook (2018) argues that language and writing are creative and performative acts, central to identity formation. Students' resistance reflects their valuation of writing as an act of thinking and identity, rather than a mechanical task easily delegated to machines.

**Statement 6: Worry about Hindering Writing Development**

For the question of whether AI tools hinder writing development, a very small minority disagreed in addition to a smaller minority that strongly disagreed. Whereas, a vast majority of 70% the students expressed worry about skill erosion due to AI use. This concern is validated by Carr (2010) in *The Shallows*, where he warns that technological shortcuts weaken deep cognitive endurance. In the context of writing, overreliance on AI can reduce the active struggle necessary for building fluency and creativity.

**Statement 7: Worry that AI Does Not Reflect Personal Writing Style**

A striking 73.34% of students agreed or strongly agreed that AI-generated text fails to reflect their authentic writing style. Only a very small minority disagreed or remained neutral. Suresh Canagarajah (2015) emphasizes that writing is a sociocultural performance of identity. Students' worries suggest they perceive AI outputs as flattening their unique voice, which makes their writing sound generic or detached from personal academic expression.

**Statement 8: Over-Reliance on AI Hindering Development**

Similarly, regarding over-reliance hindering development, 70% agreed or strongly agreed, reinforcing previous concerns. Only 6.66% strongly disagreed, and 10% disagreed. This matches Little's (1991) concept of learner autonomy: authentic learning requires active self-regulation, which becomes compromised when external aids like AI are used uncritically.

**Statement 9: Reliability of AI-Generated Content**

In terms of reliability, responses were more divided: 13.33% strongly disagreed, 16.67% disagreed, 30% were neutral, and 40% agreed or strongly agreed that AI-generated content is unreliable. This ambivalence is reflected in Zhai's (2022) research, which highlights that AI-generated content often contains factual inaccuracies or lacks academic rigor, which makes blind trust problematic.

**Statement 10: AI and the Risk of Encouraging Plagiarism**

About 66.67% of students agreed or strongly agreed that AI tools could encourage plagiarism if not used properly. A smaller group remained neutral or disagreed. Floridi and Cows (2019) stressed that ethical AI use must prioritize authorship, transparency, and accountability. Students' ethical sensitivity demonstrates growing awareness of the fine line between assistance and academic dishonesty.

**Statement 11: I believe that AI should be used with teacher guidance in academic writing.**

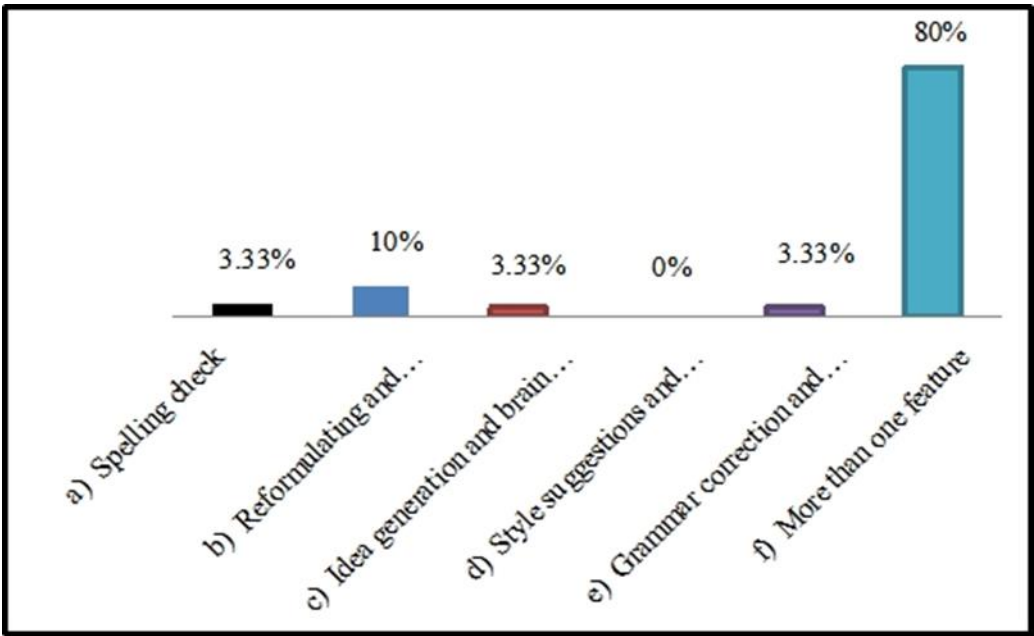
A vast majority of (66.67%) agreed or strongly agreed that AI tools should be used under the supervision of the teachers. This is a combination of 30% who strongly agreed and 36.67% proportion who agreed to the statement. On the other hand, a small minority disagreed in a 13.33% percentage and an equal 33.33% strongly agreed while a low 3.66%

were neutral. These results show a distinct preference of using AI under supervision of teachers in academic writing. This demonstrates the student’s awareness of AI’s limitations.

**Q12.** After having used AI tools for while in writing, what features of artificial intelligence (AI) writing tools do you find most beneficial for your academic writing? (You can choose more than one answer.)

**Figure 4.15**

*Beneficial Features of AI Writing Tools*



**Others:**

- More organisation

The data shown in both graph 3.16 and table 3.16 suggests that while specific isolated features such as grammar correction, spelling checks, and idea generation are appreciated to a small extent, the true value of AI tools for students lies in their multi-functionality. Most students benefit when several supportive features are combined such as correction, rephrasing, and brainstorming rather than relying on one isolated function. According to Vygotsky’s sociocultural theory (1978), scaffolding through multiple

supports enhances learners' engagement and promotes deeper internalization of skills. If AI tools only addressed one small aspect (e.g., only spelling), they might not sufficiently scaffold the broader academic writing process.

Students' preference for multi-feature tools reflects their need for complex cognitive support across multiple stages of writing from brainstorming ideas to polishing the final text. Research by Zhai (2022) and Lee et al. (2024) further strengthens this view, emphasizing that AI tools are most beneficial when they act as multi-dimensional supports helping students with both surface-level corrections and deeper organizational and stylistic improvements. These findings stress the need for students to be trained not just to use AI tools superficially, but to engage critically with the full range of their capabilities for genuine academic growth. It is noteworthy that other answers highlighted the use of AI for organization, which is sensible as AI tools follow a system and that makes them organized.

**Q13.** Did you have negative experiences while using artificial intelligence (AI) writing tools?

**Figure 4.16**

*Negative Experiences with AI Writing Tools*

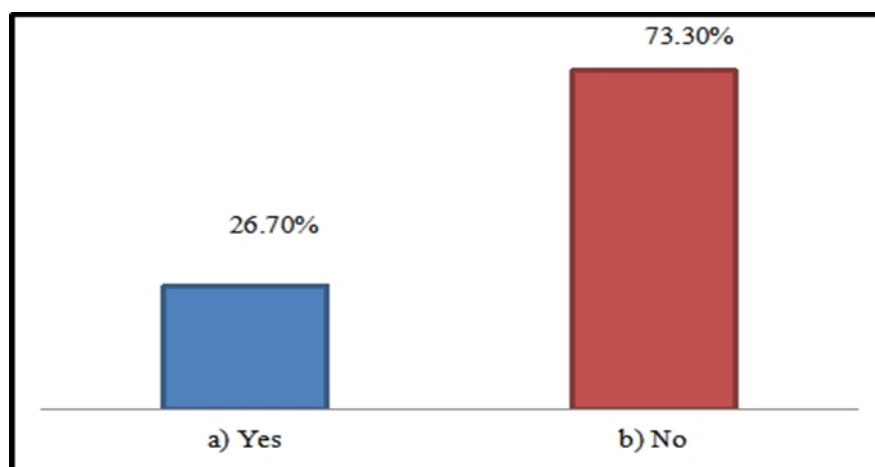


Figure 4.16 investigates whether Master EFL students have had negative experiences while using AI writing tools. The results show that 73.3% of students responded No, which indicates that they did not face negative experiences, while 26.7% responded Yes, admitting to negative experiences with AI tools.

Despite the majority (over two-thirds) reporting no negative experiences, the 26.7% who did report issues provide important insights into the potential limitations and risks of relying on AI tools. In the qualitative comments, students noted problems such as receiving incorrect information, misleading ideas, reduction in independent thinking, and loss of original meaning during paraphrasing. Some students also reported emotional responses, such as receiving reprimands from professors for providing inaccurate AI-generated data. According to the responses, a significant percentage of students experienced significant obstacles that impacted their academic performance and confidence in AI-based writing tools, even though these tools are typically well-received.

Chai's (2022) claim that AI-generated output often contains errors. Also, it can be contextually unrelated, which poses risks if used carelessly. This is supported by the findings which show that a significant number of students experience adverse outcomes. Furthermore, according to Vygotskian's (1978) sociocultural perspective, authentic, socially mediated experiences are the most effective way for students to acquire information. If AI tools present unreliable information, students may fail to engage critically and miss essential developmental opportunities. In addition, Davis's Technology Acceptance Model (1989) explains that negative experiences decrease users' perceived ease of use and perceived usefulness, which are critical predictors of technology acceptance. When AI tools fail to deliver trustworthy content, students' trust in the technology is reduced, which leads to more cautious or selective use.

As highlighted by Lee et al. (2024), for AI tools to enhance academic writing genuinely, users must be trained to verify, cross-check, and critically adapt AI outputs instead of relying on them blindly. The findings from Table 3.17 suggest that while AI tools are helpful for many students, critical AI literacy must be integrated into academic programs to ensure students use these tools safely and effectively, protecting the integrity of their learning process.

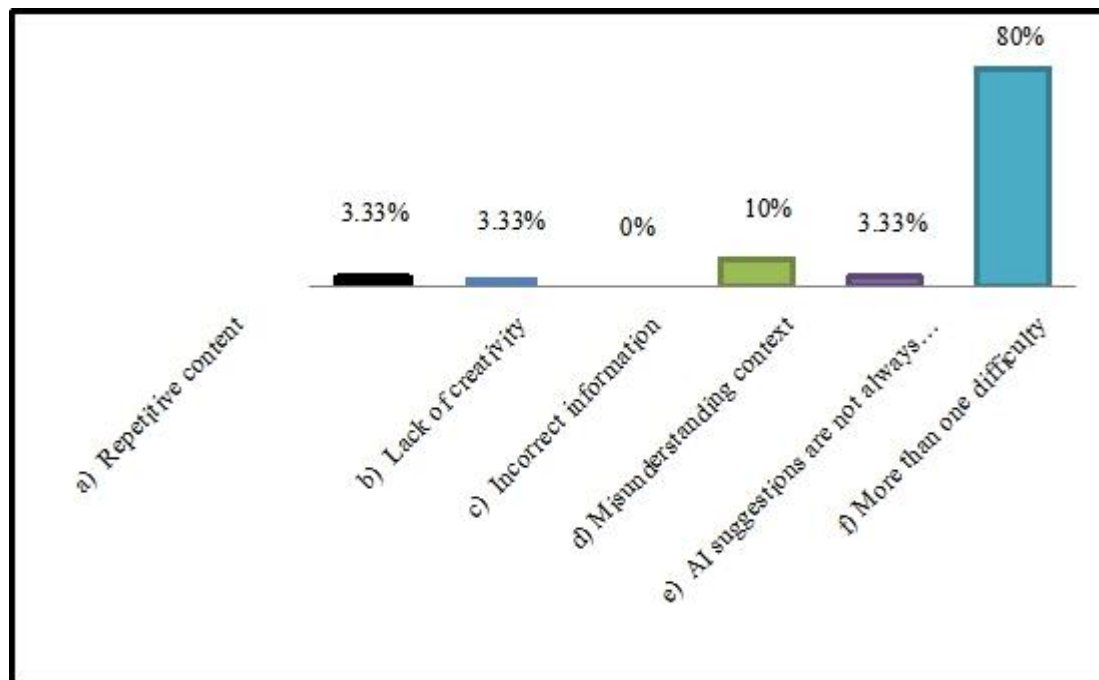
**If yes, please explain:**

- When I used to present my topic and I get a wrong knowledge so my teacher scold me and that make me cry
- It is not always accurate; it can mislead the original meaning
- It heavily influences my writing skills and made me lazy to think.
- Sometimes they change the whole meaning of the sentence.
- Sometimes the information is wrong
- It can give you information out of the topic and wrong answers that's why AI is not the first option for me
- As long as it is not a reliable source for academic writing, it often mislead me while choosing the appropriate ideas to my topic
- For example when using "ChatGpt" in writing, I discover many mistakes like spelling, no flow of ideas, irrelevant information, as a result the teacher don't accept the work."

**Q14.** What are the main difficulties you face when using AI writing tools? (You can choose more than one answer.)

**Figure 4.17**

*Difficulties Master EFL Students Face with AI Tools*



**Others:**

- It is not always accurate or on point
- No personal touch

From the graph 4.17 and table above, the majority of students (80%, 24 out of 30) indicated that they faced multiple difficulties simultaneously rather than isolated problems when using AI writing tools. The other difficulties, such as misunderstanding context (10%), repetitive content (3.33%), lack of creativity (3.33%), and inaccurate suggestions (3.33%), were cited much less frequently when considered individually. This suggests that while isolated technical or stylistic issues occur, the primary challenge students face is the complexity and accumulation of several problems at once. It reflects that AI outputs often

exhibit a mix of issues such as repetitive structures, shallow creativity, and partial misinterpretation of context, which undermines students' trust and effective use of these tools.

These findings are consistent with Vygotsky's (1978) sociocultural theory, which emphasizes that effective cognitive development occurs through authentic, problem-solving engagement. When AI presents repetitive, inaccurate, or context-poor outputs, it does not provide the rich, interactive support that learners need for higher-order thinking development. Instead of scaffolding learning, it risks simplifying or even misguiding learners.

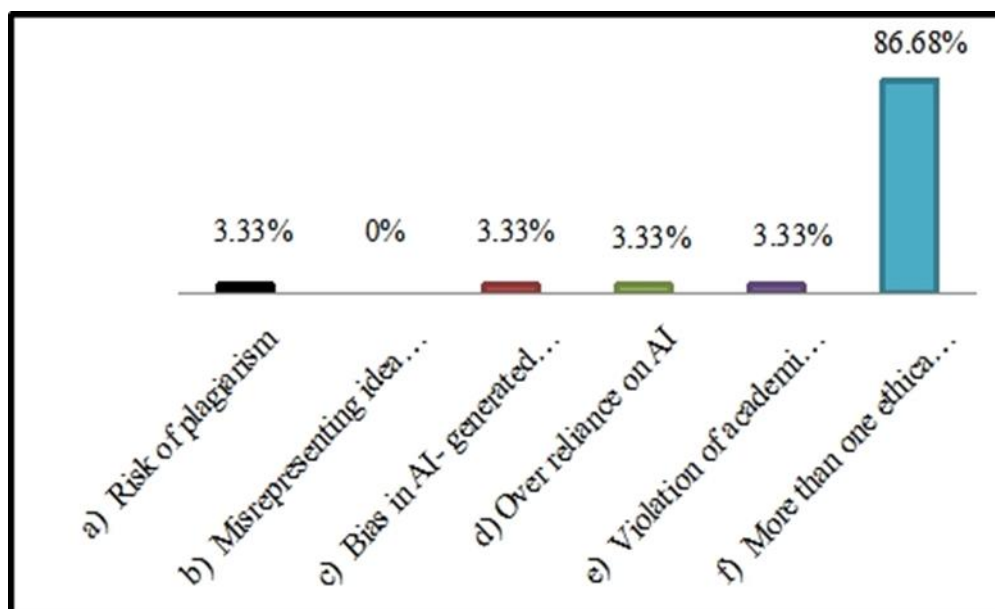
According to Davis's Technology Acceptance Model (1989), two major factors influence technology adoption: perceived usefulness and perceived ease of use. The presence of multiple simultaneous problems diminishes students' perception of AI's usefulness in developing quality academic writing. This perception matches research by Zhai (2022) and Lee et al. (2024), who argue that AI tools can introduce new cognitive barriers when they deliver generic, repetitive, or inaccurate content, especially if students use them without critical evaluation. Furthermore, other answers highlight the lack of dynamic content in AI tools and even precision in terms of addressing the tasks effectively.



**Q15.** What ethical concerns do you have about using AI tools for academic writing? (You can choose more than one answer.

**Figure 4.18**

*Ethical Concerns Regarding AI Tools for Writing*



According to graph 4.18 above, the vast majority of students (86.68%) selected more than one ethical issue, indicating that students perceive multiple risks when using AI for academic purposes. However, relatively few students independently identified isolated risks such as plagiarism, bias, overreliance, or violations of academic standards.

As a result, students demonstrate a deep understanding of the complex ethical landscape surrounding AI in writing. This includes more general concerns such as loss of authenticity, distortion, bias, and dependability, in addition to plagiarism.

These findings align closely with Vygotsky's sociocultural theory (1978), which stresses the role of authentic interaction, cognitive responsibility, and self-regulation in learning. The students' awareness of ethical issues suggests they understand that blindly relying on AI tools removes personal accountability, which is essential for developing real academic competence and intellectual maturity.

From the Technology Acceptance Model (TAM) (Davis, 1989) as he mentions how trust and ethical concerns are critical factors influencing the perceived usefulness and perceived risk of a new technology. Students' concerns about multiple ethical risks imply that while they may appreciate AI tools' functionality, they do not trust them entirely, especially when it comes to maintaining academic integrity.

**Q16.** In your opinion, what role should AI play in academic writing instruction?

- As a helper or a tool that will make you more training on your writing skills and correct you but not as a guider
  - We can use it for planning and outlining, but not for the whole writing process
  - Facilitator
  - Developing our writing
  - Delivering ideas with reference and citation to avoid plagiarism and to encourage reading
  - The role AI should play in academic writing instruction is for organising thoughts and sometimes or reformulating.
  - Giving ideas brainstorming
  - I think it is better to use AI to search for references and specific content and organise the ideas
  - I believe AI should play the role of checker and corrector in academic writing
  - The AI should only be a grammar checker or facilitator only, not information provider.
  - It should work as a helping tool rather than using it as an only source of writing.
- We should not over rely on these tools.

- It plays the role of an aid that can help and guide students in writing more academically. It also enriches their vocabulary and understanding of topics.
- It could help only in providing ideas (extra ideas) and detect grammar mistakes (not always) and in guiding students to find relevant resources.
- Corrector, guide, provide accurate and cohesive ideas, creativity....
- Corrects misspelling, guides to more academic structure and organises ideas.
- To guide and provide some ideas. That is it.
- In my opinion, I think EFL students should not use AI in academic writing instruction.
- Helping to define general ideas, brain storm, and also check our writing for correcting what we have written (grammar, spelling, punctuation,...)
- Facilitating questions and developing language
- The guide
- A source of ideas, you can take the ideas from AI and reformulate it in your own style.
- Its role can be significant for example in grammar verification , sentence structure, also citation and saving time like it can speed up the writing by giving the outlines and facilitate the work
- I think it would be better if we rely on AI only for checking spelling mistakes, punctuation marks and grammar rules.
- Facilitating and simplifying
- As a tool to fix the problem.
- AI should assist in academic writing by providing tools for grammar checks, style improvements, and idea organization, while ensuring students develop critical thinking and originality. It should support, not replace, the learning process.

- I think is one role which is helping students to organize their ideas and get more information
- Corrects mistakes, grammar and spelling

### **General interpretation of the individual statements in response to questions 16**

According to the responses to Question 16, there is broad agreement among Masters EFL students that AI should be used to enhance the teaching of academic writing, rather than to be the focus of attention. The majority of students view AI as a organizer, facilitator, corrector, or source of ideas. Phrases such as a helper, tool, assistant or a guide reflect this view. Many students emphasized that AI can help generate concepts, develop and organize outlines, and improve mechanical accuracy (spelling, grammar, and punctuation). However, they consistently emphasized that AI should not be the primary author or source of information. Many pointed out that over-reliance on AI could lead to academic dependency or plagiarism, with one student even arguing that EFL students should not use AI at all.

These responses demonstrate a responsible and integrated mindset that recognizes the value of AI in academic writing. Students also recognize the importance of maintaining a personal touch, honesty, and critical thinking throughout the writing process. Vygotsky's 1978 sociocultural theory is relevant in this regard. It demonstrates that despite the potential and usefulness of AI, it is ideal to make use of it under supervision and reflection of the setting and the social environment in which the produced language is going to be used in. Similarly, according to Davis's (1989) technology acceptance model, students are more likely to adopt AI tools if they perceive them as helpful and non-intrusive, meaning that AI augments rather than replaces human work when supervised. Overall, the students demonstrate a mature understanding that AI should enhance autonomy, not suppress it.

**Q17.** Please, share any additional thoughts or comments regarding AI tools and your academic writing experience.

- AI tools are very beneficial in enhancing my academic writing skills, as it helps in training all the rules and different strategies' styles
- The students should rely on books and reading. He should write by his own style
- It is really helpful If we just know how to use it appropriately
- They are good to use but we don't need to over relying on it
- I never use AI except Google and Google Scholar to generate ideas.
- AI tools are helpful if used in the right way. My academic writing experience is quite good so far.
- We have to raise awareness among students about the negative drawbacks of the use of AI tools on the academic writing skill.
- AI tools are beneficial only when used with cautious. It helped many people in improving their writing skills.
- It's generally good and accurate but it may cause lack of self-reliance
- Personally, AI tools help me a lot in improving my writing skills by correcting grammatical structures, providing new ideas and making it more academic and formal.
- AI is sometimes very vague and general. It does not reflect the students' style, and sometimes it misleads the content if the students do not provide it with proper instructions.
- AI tools are beneficial for some and are not for others. It depends on how to use it.
- I noticed once that AI makes disorder in sentences' structure.
- "There must be awareness during the use of these tools and not to rely only on them, otherwise our written skills will not develop.

- Also, our writing is better to be verified by a specialist or expert instead of these tools.
- Be intelligent when using artificial intelligence And do not use it in everything
- AI tools can make writing easier, but they shouldn't replace real thinking. They're great for fixing grammar and organizing ideas, but it's still up to us to make sure our work is original and meaningful.
- over reliance on AI can lead to lack of creativity using it should be limited, you can pick up just what you need and not everything word by word because if it gives you the wrong answers can ruin all the research , for my own experience i used to read all the information that it gives me and rewrite it with my own words
- The continuous relying on AI tools in academic writing may negatively affects your abilities
- AI help, but over relying on it is a big issue.
- AI tools can enhance academic writing by offering instant feedback, saving time, and helping students learn from mistakes. However, students should use them responsibly, avoiding over-reliance to maintain authenticity and develop their own writing skills.
- We have to be so careful while using it because it can lead to negative consequences
- AI tools help me a lot to organize my ideas and create a clear paragraph.

### **General interpretation of the individual statements in response to questions 17**

A wide range of student experiences is revealed throughout the open-ended responses to Question 17, reflections, and concerns regarding the integration of AI tools in academic writing. However, four dominant themes emerge from the data: (1) perceived

benefits of AI tools, (2) caution against over-reliance, (3) ethical and quality-related concerns, and (4) the importance of critical and informed usage.

The answers demonstrate that when students use AI, they adopt tools based on perceived usefulness and ease of use. It also supports Flower and Hayes's (1981) model of the writing process, where feedback and revision are essential to successful writing development. Despite acknowledging the benefits, students repeatedly emphasized the danger of over-reliance on AI. Concerns were raised about "lack of self-reliance," "loss of creativity," and the tendency to "ruin research" when AI content is used without critical evaluation. Many students stated that AI "shouldn't replace real thinking," and others warned that "our writing skills will not develop" if we depend solely on it. These responses show a sophisticated awareness of the cognitive risks posed by automation, echoing Carr's (2010) concern that the habitual outsourcing of intellectual tasks to digital tools may erode deeper critical thinking and self-expression.

Another theme focused on issues of quality and trust in AI-generated content. Some students noted that AI outputs can be "vague and general," "not reflect the student's style," or cause "misorder in sentence structure." These concerns correspond with Zhai's (2022) and Luckin et al.'s (2016) findings that AI tools often lack context sensitivity and can produce misleading or incoherent text, especially when prompts are unclear or when students lack the skills to evaluate outputs critically.

The final recurring theme was a call for awareness, moderation, and AI literacy. Students explicitly suggested that AI should be used with caution, only for what you need, and not word for word. Several highlighted the importance of verifying AI output with experts or relying on traditional academic sources like books. This reflects an implicit call for structured AI training in academic settings, where students are taught how to use AI tools critically and ethically. Such comments reinforce the principles of Floridi and

Cowls's (2019) framework for trustworthy AI in education prioritizing accountability, transparency, and human control.

In sum, the responses to Question 17 portray a student body that is technologically literate, ethically aware, and pedagogically reflective. They value AI tools as enhancers of clarity, speed, and accuracy, but they insist on critical thinking, originality, and academic integrity as non-negotiable elements of academic writing. These learners do not reject AI; they instead call for its intelligent integration into writing instruction. Which is can be considered as an integration that must be guided by human judgment, institutional policies, and learner autonomy.

#### **4.2.2 Results of the interview**

##### **Teachers' interview Analysis**

For an insightful analysis and understanding of the role of AI tools in academic writing, four university EFL teachers were interviewed in the University of Mohamed Kheider. Their responses provide a valuable complementary perspective to the student questionnaire data. This offers deeper insights into the perceived impact of AI on learners' writing performance, engagement and ethics. The aim of this analysis is to address the two research questions related to the impact of artificial intelligence tools on the academic writing of EFL students. The responses were categorized using a deductive thematic approach based on the interview questions, highlighting the benefits of AI tools.

**Q1.** How would you describe the overall academic writing level of your students?

##### **Teacher Response**

**Teacher 1:** Most students have an intermediate level in academic writing with some exceptions of students who are excellent or poor in writing.

**Teacher 2:** Average. Only a minority is able to write academically while the other students need more reinforcement and practice.



**Teacher 3:** Medium/weak/ and very few with good writing style.

**Teacher 4:** Generally, and for the majority, it is just above average, and most students need much more practice.

**Theme 1:** Intermediate to Average Level: The teachers' responses indicate that the majority of their students' academic writing ability falls within the intermediate or average range. This suggests that most students possess basic academic writing skills, but often lack the depth and structure characteristics of more advanced writing. The use of terms like average level implies that students are not failing in their writing, but they are not at the level expected for higher academic achievement.

**Theme 2:** Need for Improvement: a strong and consistent theme across all the teachers' responses is the realization that the majority of the learners require an additional support and practice to improve their writing. The need for more reinforcement and practice suggests that students' writing skill is still in progress and not yet fully developed. It also implies that students may struggle with certain aspects of academic writing, such as grammar, structure, argumentation, or clarity. This highlights a potential gap between the students' current abilities and the demands of academic writing.

**Theme 3:** Variability in Skill Level: Teachers also acknowledge that there is a range of writing abilities within their student populations. Some students are described as excellent or having a good writing style, while others are characterized as poor or weak. This variability makes teaching more difficult because a single approach might not work for everyone. Therefore, teachers have to use differentiated instruction, which means changing or adjusting their teaching methods and materials to meet each student's learning needs and support all students' writing development.

Teachers consistently characterized their students' academic writing as average to below average. Majority of students do not know how to express ideas and thoughts well in

formal academic writing. That is why reinforcing the need for structured writing lessons and regular practice are very important even if the students are using AI tools to help their writing tasks.

**Q2.** How often do you notice students using AI tools in their academic writing?

**Teacher Response**

**Teacher 1:** I often do. Recently, all students use them in any writing task.

**Teacher 2:** Most of them rely on AI tools.

**Teacher 3:** For my Academic Writing class, it is prohibited, yet indirectly if I do not supervise their in-Class activities, they completely rely on them.

**Teacher 4:** In the written expression session, I may notice students using generative AI language modals for generating ideas. They are not allowed to use it for written production, yet some may use it and their work will not be accepted.

**Theme 1:** Frequent Use of AI Tools: The responses clearly show that AI use is very common, it is not just a few students who rely on these tools, but instead it is something that majority of students are doing it very regularly. Teachers use terms like often, all students, and rely on to describe the prevalence of AI tool usage. This indicates that AI tools have become a very normal part of the students' writing; it helps them to plan, write and improve their work.

**Theme 2:** AI Use despite Prohibitions: Some teachers note that students use AI tools even when explicitly prohibited, particularly when unsupervised. This creates challenges in keeping the academic work honest and shows that schools need better ways to manage AI tool use fairly and effectively in academic settings and the chance that students might avoid following the rules.

**Theme 3:** AI Use for Idea Generation: This theme focuses on how some students are using AI tools to help them come up with ideas for their writing, even if they are not allowed to

use it. One teacher specifically mentions the use of AI tools for generating ideas. This means that students ask AI to suggest topics, assist them with brainstorming and developing content for their writing. Even though idea generation can be a helpful application of AI, it also raises questions about students' independent thinking and the potential for over-reliance on AI-generated ideas.

Teachers acknowledged that students use AI tools frequently, even in contexts where they are technically prohibited. Some of them are using AI outside class, at home or in ways that teachers cannot control, which complicates efforts to gauge authentic writing ability. This reflects the pressing need to establish clear institutional policies about how and when are students allowed to use AI.

**Q3.** What improvements (if any) have you observed in students' writing due to AI tools?

#### **Teacher Response**

**Teacher 1:** I observed insignificant improvement. In contrary, some students' level has decreased due to the overuse of these AI-produced tools.

**Teacher 2:** With the use of AI tools, learners are able to be more effective when writing, but it is not the case of all learners.

**Teacher 3:** They became passive relying on them, if they are not using them, I dare to say, they would improve.

**Teacher 4:** It might be helpful in generating relevant ideas and helping with structuring information and avoiding basic spelling mistakes.

**Theme 1:** Limited to Insignificant Improvement: this theme shows that teachers reported that the overuse of AI tool has not led to clear improvement in students' academic writing. In fact, some teachers observed that students' writing levels have decreased because they rely too much on these tools instead of developing their own writing skills. This challenges

the assumption that AI tools automatically enhance writing quality and raises serious concerns about their potential negative impact on skill development.

**Theme 2: Potential for Effectiveness:** One response suggests that AI tools can help improve writing effectiveness, but only in certain situations. This means that AI might be helpful for some learners, but not all of them will benefit from it. If they use it wisely to support their thinking and writing, it can be very beneficial, but if they rely on it too much or have no idea how to apply the feedback, it may lead to no improvement. So despite of the AI potential and its benefits, still it is not a guaranteed solution for a better writing.

**Theme 3: Negative Impact of Over-reliance:** Several teachers express concern that relying on AI tools to do most of the work is affecting how the students learn to write. They do not actively think through their ideas or solve problems on their own. The overuse of AI may discourage active engagement with the writing process, such as critical thinking, problem-solving, and self-editing.

**Theme 4: Potential Benefits for Specific Aspects of Writing:** One teacher notes that AI tools may be helpful for specific writing tasks, such as generating ideas, structuring information, and correcting basic errors. These tools can make the writing process easier and quicker in some ways; however, it cannot replace the need for the students to learn and develop the overall writing proficiency on their own.

While a few educators noticed small benefits from AI tools like idea generation or grammar correction, the majority noted little overall improvement in students' writing. In many cases, students became overly passive, too dependent on AI and stopped writing or thinking for themselves. The implication is that AI tools can offer benefits but only when used critically and with clear purpose.

**Q4.** What negative effects (if any) have you observed in students' writing due to artificial intelligence (AI) tools?

**Teacher Response**

**Teacher 1:** Overreliance on AI tools to generate ideas i.e. no personal touch. Plagiarism and other ethical considerations.

**Teacher 2:** They just copy down what is provided to them by these tools without any critical thinking or reading they plagiarize.

**Teacher 3:** Complete passiveness, laziness, demotivated for work.

**Teacher 4:** Overreliance usually leads to a clear difference between their class work and a standard work exam, which is a clear identifier of a negative aspect.

**Theme 1:** Over-reliance and Lack of Personal Touch: Teachers consistently highlight the issue of students becoming overly dependent on AI tools, which leads to lack of personal expression and originality in their writing. This over-reliance can diminish students' ability to express their own ideas and perspectives, and this can lead to generic and impersonal writing. The concern about the absence of a personal touch underscores that students are not fully engaged with the writing process or expressing their own ideas and thoughts.

**Theme 2:** Plagiarism and Ethical Concerns: Plagiarism is a major concern associated with the use of AI tools. Teachers observe that some students often copy down AI-generated text directly into their assignments without making any changes. This raises serious ethical problems, as the learners are submitting work that is not truly their own. This highlights the need for educators to teach students about academic honesty and how to be responsible when using AI tools in a way that help their learning instead of replacing it.

**Theme 3:** Passivity, Laziness, and Demotivation: AI tools are seen as contributing to negative student behaviors such as passivity, laziness, and demotivation. Teachers express concern that easy access to AI tools makes students less willing to exert effort and less

motivated to write on their own. This raises questions about the impact of AI on students' work ethic and their intrinsic motivation to learn and improve their writing skills.

Teachers described students relying on AI to the point of losing originality and personal effort. Plagiarism was a major concern as students sometimes belong AI generated ideas as their own without giving credit, along with a clear gap between in-class and out-of-class writing quality. This shows the dishonest academic practices and a lack of transfer writing skills from one context to another.

**Q5.** Do you think AI tools impact students' ability to develop independent writing skills? Why or why not?

### **Teachers Responses**

**Teacher 1:** Yes, I do. Independent writing requires personal thinking and personal arrangement of ideas which may not be supported in case students often use AI tools.

**Teacher 2:** These tools can impact them positively if they are well used. However, most of them take the pieces of information they collect from these tools as they are they do no effort to reformulate, paraphrase or summarize.

**Teacher 3:** Yes, as mentioned earlier, since it is available and easy to use, they became too dependent on it. They will stop practicing and working on their level.

**Teacher 4:** Yes, because they are not well-trained on how to use these tools efficiently, and at the same time, they are not supervised and disciplined when using it for cheating.

**Theme 1:** Negative Impact on Independent Writing: A strong consensus emerges that AI tools negatively effect on the students' ability to write independently. Teachers argue that independent writing requires personal thinking, idea organization, and practice, all of

which can be undermined by over-reliance on AI. This perspective emphasizes the importance of students actively engaging in the writing process to develop their own skills.

**Theme 2:** Potential for Positive Impact (with conditions): One teacher offers a more balanced opinion, suggesting that AI tools can have a positive impact if students and teachers use it appropriately. However, if the students rely on AI to do all the work, it can damage their learning progress. This implies that AI tools are not inherently limit to skill development but with their impact depends on how they are integrated into the learning process.

**Theme 3:** Lack of Reformulation and Paraphrasing: Teachers observe that students often tend to copy AI's output and directly into their work without making an effort to reformulate, paraphrase, or summarize the information. This shows a lack of real engagement with the source material, they miss the opportunity to practice important writing aspects such as critical thinking, analysis, and synthesis.

**Theme 4:** Importance of Training and Supervision: Teachers stressed that the need for proper training and supervision is crucial to reduce the negative impact of AI tools. Teachers emphasize that students must be taught how to use AI tools effectively and ethically, and that their use should be monitored to prevent misuse and promote responsible practices.

Most teachers agreed that AI tools can interfere with the development of independent writing skills. Students stop thinking critically or practicing writing when they rely too heavily on AI-generated output, which impairs long-term learning. Some noted that the lack of proper training on AI use increases the risk of misuse such as plagiarism.

**Q6.** What challenges do students face when using AI tools for academic writing?

**Teacher Response**

**Teacher 1:** Inability to use proper prompts.

**Teacher 2:** Lack of attention to relevant content and reliable information.

**Teacher 3:** Lack of human touch.

**Teacher 4:** Overreliance on such tools does not enhance their academic writing. It prevents them from being creative or critical thinkers and writers.

**Theme 1:** Prompt Technology Issues: The inability to formulate effective prompts is identified as a significant challenge for students. This suggests that students may lack the skills to guide AI tools in generating the specific type of text or information they need. Effective prompt technology is crucial for utilizing the potential of AI tools, and students may require explicit instruction in this area.

**Theme 2:** Information Evaluation Skills: Students struggle with evaluating the relevance and reliability of information generated by AI tools. This highlights the importance of critical thinking skills in the age of AI, as students must be able to discern credible sources and assess the accuracy and validity of AI-generated content.

**Theme 3:** Loss of Human Element: The absence of a human touch in AI-generated writing is seen as a drawback. This reflects a concern that AI tools may produce text that lacks the creativity, and individual voice that are valued in academic writing.

**Theme 4:** Hindrance to Skill Development: Teachers express concern that over-reliance on AI tools can impede the development of essential writing skills, such as creativity, critical thinking, and effective communication. This underscores the importance of balancing AI use with traditional writing instruction to ensure that students develop a full range of writing abilities.



**Theme 5:** Dependency and Passivity: AI tools can foster dependency and passivity in students, and this may lead to a lack of engagement with the writing process. This can hinder students' ability to take ownership of their writing and develop the self-reliance necessary for academic success.

**Theme 6:** Comprehension and Coherence: Students may face challenges in understanding complex concepts and producing coherent and unified written work when relying on AI tools. This suggests that AI-generated text may not always be well-structured or logically organized, and students may struggle to integrate it effectively into their own writing.

Students reportedly struggle with how to properly ask AI the right questions or give clear instructions. Because of this, texts that AI provides them are sometimes off topic, confusing or do not fit their assignments. Teachers observed a lack of creativity and critical thinking, along with dependence that slows intellectual growth.

**Q7.** Do you think AI tools should be integrated into academic writing instruction?

**Teacher Response**

**Teacher 1:** Yes, efficient instruction and supervision is necessary.

**Teacher 2:** Yes, yet with limited and guided use by the academic staff.

**Teacher 3:** Yes, I do. We have to acknowledge these new tools and make them beneficial and useful to students wisely and moderately.

**Teacher 4:** Yes, AI tools can be integrated into academic writing instruction if they are well used.

**Theme 1:** Support for Integration (with conditions): Most teachers expressed support integrating AI tools into academic writing instruction, but they emphasized that it should be under specific conditions. This reflects a sense of cautious optimism about the potential of AI in education: teachers recognize the benefits of AI but still they know the risks behind it such as cheating and overreliance.

**Theme 2:** Need for Guidance and Moderation: A central theme is the importance of providing guidance, supervision, and moderation in the use of AI tools. Teachers emphasize that AI should not be used freely or without limits, but rather as a pedagogical aid to support specific learning objectives under the guidance of instructors. This highlights the crucial role of educators in shaping how AI is used in the classroom.

All participants agreed on AI integration into education, but only under specific conditions: its use must be guided, limited, and ethically supervised. Teachers recognized the inevitability of AI in modern education but they emphasized the need to train students to use it thoughtful and responsible way.

**Q8.** What strategies do you suggest for helping students use AI tools responsibly without becoming overly dependent?

#### **Teacher Response**

**Teacher 1:** Using prompts and relevant questions for generating ideas, revising, coherence and cohesion, spelling mistakes and other editing procedures.

**Teacher 2:** Students should not be too self-reliant on these tools. Teachers should provide strategies such as how to integrate source information into their writing production without plagiarizing. They can take notes, summarize or paraphrase.

**Teacher 3:** Raising awareness about their positive and negative aspects on the level of the students, establishing more strict measures to supervise their use, acclimating the teaching strategies to accompany their use

**Teacher 4:** Teachers must create terms for efficient and fair usage of AI tools and follow strict guidelines in applying them.

**Theme 1:** Using AI for Specific Purposes: Teachers suggest that AI tools can be used effectively for specific tasks such as brainstorming, revising, and editing. This approach encourages students to use AI as a helpful tool rather than becoming overly reliant on it for

all aspects of writing, promoting learning and skill development without fostering overdependence.

**Theme 2:** Emphasizing Source Integration and Avoiding Plagiarism: A key strategy used by the teacher is to teach students how to properly integrate source information and avoid plagiarism when using AI-generated text. This training focuses on three core skills: summarizing, paraphrasing, and citing sources appropriately.

**Theme 3:** Raising Awareness and Implementing Strict Measures: Some teachers advocate for raising students' awareness of the positive and negative aspects of AI tools, helping them to understand how to ethically and effectively use these technologies; as well as, implementing stricter rules to supervise their use and prevent misuse. This approach combines education with regulation to promote responsible AI use and deter misuse.

Educators recommended raising students' awareness of both the benefits or the drawbacks of using AI. They emphasized on teaching crucial academic skills such as paraphrasing, summarizing, and citation skills. Suggestions also included establishing institutional policies to promote responsible use and reduce overreliance.

**Q9.** Have you made any changes to your teaching methods or assessments due to students' use of AI tools? If yes, how?

### **Teacher Response**

**Teacher 1:** Yes. I start asking more questions about students' reflection, critical thinking and analysis.

**Teacher 2:** Yes. I do not give them homework where they have to write. All writing practice is done in the classroom without using these tools. They can generate information, and then do the analysis and the synthesis in the classroom.

**Teacher 3:** I used some AI detector websites, I tried to accustom my critical eye to the tone of the AI tool, I task my students my in class activities with intense

program and constant feedback on their assignments. The latter allowed me to study well their level of writing, and hence, to a certain extent, controlling any AI use penetration.

**Teacher 4:** Yes, I deliberately instruct and guide students on the efficient use of AI tools.

**Theme 1:** Focus on Critical Thinking and Reflection: Teachers are adapting their teaching by placing greater emphasis on critical thinking, analysis, and reflection in student work. This shift aims to reduce the chance of using AI to complete the assignments outside the class, promote more honest work and reinforces fundamental composition skills.

**Theme 2:** Shift to In-Class Writing: Some teachers are now brining writing activities into the classroom as a response to concerns about the overuse of AI tools. This strategy allows for direct supervision and reduces the opportunity for students to rely on AI to complete assignments outside of class.

**Theme 3:** AI Detection and Monitoring: Teachers are employing AI detection tools and training themselves to recognize writing that may have been generated by AI. This reflects an effort to monitor and address the potential for academic dishonesty associated with AI use.

**Theme 4:** Explicit Instruction on AI Use: One teacher mentions explicitly instructing students on how to use AI tools in smart and responsible way. This proactive approach aims to equip students with the skills and knowledge they need to use AI responsibly.

To address concerns about students overusing AI tools, teachers have adapted a common strategy which is shifting toward in-class writing tasks that are completed under real-time supervision, where student work under teacher's supervision without the help of AI. Some incorporated reflection and critical thinking tasks to make AI use less viable. Others adopted AI detection tools or adjusted their grading to discourage reliance.

**Q10.** What ethical concerns do you have regarding students' use of AI tools in academic writing?

**Teacher Response**

**Teacher 1:** Mostly plagiarism and overdependence that affect instructional and assessment fairness.

**Teacher 2:** I always exercise polite rebuke on them whenever they use it, and to certain extent it reduced the ratio of use.

**Teacher 3:** The wrong use of such tools may impact negatively students' proficiency. Being ethical when using these tools is challenging because most students prefer easy matters instead of doing effort and learning.

**Teacher 4:** Plagiarism and absence of originality (Academic honesty)

**Theme 1:** Plagiarism and Academic Dishonesty: Plagiarism is a central ethical concern expressed by teachers. Since AI creates easily full essays and answers, some students submit AI-generated work as their own, which undermines academic integrity.

**Theme 2:** Overdependence and Fairness: Over-reliance on AI tools raises concerns about fairness in assessment. Teachers worry that students who rely heavily on AI may have an unfair advantage over those who do not, and that AI use may not accurately reflect students' actual abilities.

**Theme 3:** Negative Impact on Proficiency: Teachers are concerned that the misuse of AI tools can negatively impact students' writing proficiency. As a result, students may not develop important writing skills and could permanently weaken their learning process.

**Theme 4:** Student Attitude and Effort: There's a concern among teachers that AI tools may encourage students to take the easy way out instead of putting real effort into their own work. This raises questions about the impact of AI on students' motivation, work ethic, and overall academic engagement.

Plagiarism was a key concern, along with lack of originality. Teachers are worried that it is unfair to grade to students who are using AI to do the work, while some others are honestly writing and using their own ideas. This underscores the importance of ethical training in digital literacy.

### **Discussion**

The results of four teachers' interview indicate that AI tools have a multifaceted impact on EFL students' academic writing skills. On the positive side, these tools help correct all types of errors and generate ideas. On the negative side, they impair students' critical thinking, independent writing, and overreliance on their use. Teachers indicated that students' writing skills were mostly average, and that the majority of them overused AI tools despite instructions not to. This overuse hinders the learning of writing skills and leads to a decline in students' performance, especially when copying without understanding.

Ethical concerns constitute are a major challenge and concern regarding the use of AI tools in academic writing, due to plagiarism. However, some teachers believe that these tools can be combined with expert supervision and guidance and used for specific tasks such as idea generation and draft revision. To address these challenges, teachers have modified their teaching methods, such as increasing writing in class and promoting critical thinking, with the goal of encouraging students to develop their writing skills.

In conclusion, AI tools are a double-edged sword, especially in academic writing. It can be used to develop students' writing skills, provided it is used wisely. Despite its many benefits, it can slow down the writing process.

### **Synthesis of the Findings**

The synthesis of the practical findings reveals a critical perspective among Master EFL students in regard of the use of Artificial Intelligence (AI) tools in academic writing.

Based on the collected data, several patterns emerged, which reflect a student unity that is neither blindly accepting nor entirely reusing of AI's role in writing. Rather, students exhibit a measured engagement with AI, shaped by functionality, perceived usefulness, ethical awareness, and educational needs.

Firstly, students demonstrated a high level of familiarity with AI tools, yet their actual usage patterns were moderate to low, with only a minority using AI regularly in their academic tasks. This indicates that although the technological landscape is well-known to them, students remain selective in integrating AI into their writing routines. This selectivity stems from a clear distinction between AI's helpful functions such as grammar correction, spelling, vocabulary enrichment, idea organization, and brainstorming and areas where they perceive AI to be limited or even harmful, such as generating full content, maintaining academic voice, or developing critical thinking skills. Furthermore, the teachers reinforced this observation, who noted that while students frequently access AI, most do so uncritically, using it as a shortcut rather than a tool for learning. All four interviewed teachers observed that AI's impact remained superficial unless learners actively engaged with its content and revised it thoughtfully

Secondly, the analysis of the responses confirms that most students view AI as a supportive tool, not as a creative tool or replacement. While many admit the benefits of AI in facilitating the mechanics of writing and reducing time spent on structural concerns, a vast majority rejected the idea that AI tools is capable of replacing traditional writing methods or significantly enhance their confidence. This reflects a concern that over-dependence on AI may impede authentic writing development; a point strongly reinforced in the open-ended responses, where students voiced apprehensions about loss of originality, dependency, and reduced creativity. Furthermore, these students concerns were reflected on by instructors, who consistently reported a decline in student's engagement

and writing practice. Teachers noted that many students submit AI-generated assignments without effort to paraphrase or reformulate. This leads to a loss of uniqueness and voice, reduced creativity and an erosion of writing competences.

Thirdly, a significant finding concerns ethical and pedagogical concerns. Students are acutely aware of the risks associated with misuse of AI tools, particularly in relation to plagiarism, misrepresentation, and intellectual dishonesty. Many expressed a need for clear guidelines and teacher supervision when incorporating AI into writing instruction. This awareness was especially visible in responses calling for balance, training, and responsibility. Students preferred using AI for grammar support, paraphrasing suggestions, and idea prompts, but insisted that final content must reflect personal thought, academic rigor, and contextual accuracy. Teachers shared similar concerns. All four reported rising instances of work that seemed inconsistent with the student's real level. This rose suspicions of AI misuse. They noted that assignments generated by AI often lacked personal voice and coherence, and warned of a growing challenge in assessing true student performance. As a result, some teachers have shifted towards in-class assessments and process-based writing tasks to counterbalance AI's influence and preserve fairness.

Lastly, students advocated for a guided, critically reflective approach to AI integration. They believe that AI should be treated as an assistive device rather than a dominant writing partner. Their vision aligns with current educational research that promotes AI literacy, ethical AI use, and learner autonomy. While students are open to innovation, they do not accept it passively; they recognize the importance of preserving academic integrity and cognitive engagement in the face of growing automation. Likewise, all four teachers expressed support for guided AI use as a supervised, pedagogically grounded practice. They recommended raising student awareness about AI's limitations,



offering training on responsible usage, and adapting course design to ensure learners remain active participants in the writing process.

In sum, the findings reveal a sophisticated student stance: AI tools are welcomed as writing facilitators, particularly for surface-level tasks, but their use must be limited, purposeful, and supported by educators. Students value AI not for replacing thinking, but for supporting the writing process in ways that conserve authenticity, promote skill development, and respect ethical boundaries. This perspective is strongly supported by the teacher's observations, which emphasize the same need for balance, guidance, and accountability. Adjoined, these views highlight the urgency for academic institutions to embed critical AI literacy, develop clear usage policies, and maintain a human-centered approach to AI integration in writing education.

### **Addressing the research questions**

**Question 1:** How do EFL students view the usefulness and effectiveness of AI writing tools in improving their writing skills?

EFL students generally view AI tools as helpful in the mechanical aspects of writing, such as grammar correction, spelling, and organizing ideas. Most students view AI as an aid, not a substitute for traditional writing or creativity. Teachers confirm this perception, noting that while AI may assist with basic tasks, it does not significantly improve students' overall writing performance. Both students and teachers agree that AI's usefulness is limited to superficial support, not deeper academic skill development.

**Question 2:** What challenges do EFL students face when integrating AI tools into their academic writing processes?

Students face several challenges such as overreliance, loss of originality, and uncertainty about ethical use. Many copy AI-generated content without reviewing or critically evaluating it. Teachers have noted a decrease in student effort, raising concerns

about plagiarism and originality. Both groups emphasized the need for clear guidelines and teacher oversight to prevent misuse and promote responsible use. The main obstacle is the lack of training on how to effectively integrate AI into the writing process.

### **Conclusion**

Overall, this chapter presented the analysis of the results that were originally obtained from the previously that mentioned from data collection methods the students' questionnaire, and the teachers' interview. In addition, to brought pedagogical implications and recommendations, and the limitations of the study. Finally, it provides the discussion and synthesis of the findings.

### **General Conclusion**

In light of the contemporary academic development, academic writing has witnessed a remarkable development, and this is the result of the integration of artificial intelligence tools in education, which led to a shift in the methods of writing of all kinds. Consequently, it has become essential for English as Foreign Language (EFL) learners to be more aware of the impact of these tools on the quality of their writing. In response, researchers have sought modern solutions that align with learners' needs in supporting and enhancing academic writing.

Regarding the current study, it focused on the effect of artificial intelligence (AI) tools on academic writing, particularly the challenges related to their use and the potential overreliance on them. Such dependence may weaken critical thinking skills and compromise academic integrity. More precisely, the study highlighted the impact of AI tools on the academic writing of English as Foreign Language (EFL) learners. It examined these challenges in depth and evaluated their influence on the writing process itself through the perceptions of both EFL students and teachers.

This study contained main four chapters; the first chapter included academic writing, its definition, its characteristics, its types, its operations and the semester of the academic writing with the help of artificial intelligence. The second chapter highlighted artificial intelligence tools by including their definitions, types, and functions, while also addressing the challenges and limitations associated with their use. The third chapter dealt with the research methodology that was followed to conduct this study; finally, the fourth chapter provided a discussion and analysis of the data, followed by a summary of the findings and recommendations.

The present study adopted a qualitative research approach where a semi-structured questionnaire was employed with students and interviews with teachers to collect data aligned with the research aims. The results revealed that the use of artificial intelligence tools in academic writing is facing several challenges, particularly concerning overreliance and its impact on critical thinking, which can negatively affect the originality of students' work.

The findings emphasized the need to highlight awareness of AI tool usage into academic writing instruction, and this can allow students to be trained in using these tools responsibly.

### **Implications and Recommendations**

The findings of this study reveal valuable insights into how English as a Foreign Language (EFL) MA students perceive and interact with artificial intelligence (AI) tools in academic writing. These insights have numerous implications for English language teaching, curriculum design, academic integrity policies, and the ethical integration of emerging technologies in education. From both the student and teacher perspectives, this section presents the broader implications of the study and offers practical recommendations for educators, institutions, and policymakers.

### **Pedagogical Implications**

The study demonstrates that although students appreciate the convenience of AI tools particularly in grammar correction, idea generation, and organization they often lack the critical awareness needed to use them responsibly. These Points highlights the urgent need to integrate AI literacy into academic writing instruction. Rather than banning AI tools, educators should guide students on how to use them ethically and purposefully. Teachers, in turn, need support and training to keep pace with the evolving role of AI in education.

Furthermore, since many students have demonstrated a tendency toward overreliance, which can hinder creativity, expression, and critical thinking, writing curricula should prioritize activities that promote independent thinking, paraphrasing, and reflective writing. Assessment strategies may also need to be adapted to focus more on class writing, oral defense, or process-based assessment to ensure fairness and credibility.

### **Implications for Policy and Institutions**

Institutions should update academic integrity policies to address the use of AI in student work. Clear guidelines should be established to distinguish between acceptable support (such as grammar checks and brainstorming) and unacceptable use (such as full text generation or unapproved paraphrasing). Importantly, policies should promote transparency, not punishment fostering a culture of responsible technology use rather than fear or avoidance. In addition, departments should consider incorporating awareness campaigns and digital ethics modules into writing or research methodologies courses. This will prepare students not only to use AI wisely but also to critically evaluate its outcomes and limitations.

## **Recommendations**

Based on the study findings, the following recommendations are proposed:

- Integrate AI skills into writing instruction by teaching students how to use tools like ChatGPT, Grammarly, and Quillbot responsibly and critically.
- Encourage a balanced approach to AI use, teaching students to use AI as a support system, not a substitute for thinking or creativity.
- Train teachers to design writing assignments that resist complete automation by AI (e.g., reflective writing, personal narratives, and oral explanations).
- Update assessment methods to include more classroom writing, peer feedback, and iterative drafts to reduce reliance on AI.
- Develop institutional guidelines that clearly define the ethical use of AI and engage both faculty and students in policy development.
- Encourage discussions about authorship, originality, and digital ethics in classrooms to ensure students understand their academic responsibilities.

## **Limitation of the study**

Even though the present study covered main sides of AI usage, the researcher faced several limitations. Firstly, the limitation of number, as many students were not willing to submit their answers, thus the sample size was an issue. The data the researcher gathered was mainly through questionnaire, which may be subjective as we are enquiring about people's opinions. This method may have limitations related to the non-random selection of participants, which could affect the generalizability of the findings. Additionally, differing levels of engagement with AI tools may influence the outcomes.

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3.

# Appendices

**Appendix 1**  
**Consent Form for Interviewees**



I, the signatory, announce that I am ready to take part in a master research interview used in a dissertation entitled “**An Investigation into the Perceptions of English as a Foreign Language Learners towards the Effect of Artificial Intelligence Tools on Academic Writing**”.

- ✚ I confirm that I understand what this study is about and my role in it. I have also been given the chance to ask questions before agreeing to take part.
- ✚ I know how the data will be used.
- ✚ I understand that the data might be used in future academic presentations or publications related to this study.
- ✚ I completely understand that my participation is voluntary, and I am not required to take part in this study.
- ✚ I fully understand that I can withdraw from the study at any time, without giving a reason, up to one week after the data collection is finished.

Interviewee's name: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

If you have any questions concerning this study, feel free to contact the investigator:

Kanza KRIEM  
Department of Language and English Literature  
Faculty of Letters and Foreign Languages  
Mohamed Khider University of Biskra  
Tel: 07 75 48 35 94  
E-mail: [kanzakriem90@gmail.com](mailto:kanzakriem90@gmail.com)

## Appendix 2

### Information Letter



Dear Teacher,

My name is Kanza KRIEM, and I am a Master's student in Sciences of Language at Mohamed Khider University of Biskra. The title of my research is: **"An Investigation into the Perceptions of English as a Foreign Language Learners Towards the Effect of Artificial Intelligence Tools on Academic Writing". The Case of Master Students of English at Biskra University**

The current study aims to explore students' perceptions of these tools, their effectiveness in enhancing students' writing skills, and the challenges they present in the learning process. And it seeks to cross-check students' perspectives with teachers' insights.

You are kindly invited to take part in this research study. Before deciding to sign on the consent form, you can ask questions if you need further clarification or if you would like to receive more information.

Yours sincerely,

Kanza KRIEM

Mohamed Khider University of Biskra

Riahana FOURAR

Mohamed Khider University of Biskra

**Appendix 3****Questionnaire for EFL Students: validating stage**

**Dear students,**

This questionnaire is part of a study exploring the effect of artificial intelligence (AI) writing tools on EFL students' academic writing. It aims to investigate students' perceptions of these tools, their effectiveness in enhancing students' writing skills, and the challenges they present in the learning process. You are kindly requested to put tick (✓) on the appropriate answer (s). Be assured that your responses will be anonymous.

**QUESTIONS****Section One: EFL students' background information**

1- Gender:

Male

☐

Female

☐

2- What is your preferred style of writing? Please specify

Academic writing

☐

Informal writing

☐

Creative writing (e.g., short Stories, poetry, story platform)

☐

Others:.....

.....

3- What do you prefer to write?

Stories

Blogs

Essays

Poetry

Articals

## **Section Two: Perceptions and Experiences with Academic Writing Among EFL Students**

4- How would you describe your overall experience with academic writing in English?

Very difficult

Difficult

Less difficult

Easy

Very easy

5- What specific challenges do you face when writing academically in English? (you can choose more than one answer)

Word choice

Orgnizing ideas



Limited vocabulary	<input type="text"/>
Difficult with coherence	<input type="text"/>
Grammar and punctuation mistakes	<input type="text"/>

6- Which strategies do you use to improve your academic writing? (you can choose more than one answer)

Outlining before writing	<input type="text"/>
Revising and editing	<input type="text"/>
Practicing writing regularly	<input type="text"/>
Reading academic papers	<input type="text"/>
Using AI tools	<input type="text"/>

**Section three: EFL students' Perception Towards Using Artificial Intelligence (AI) Tools in Academic Writing.**

The response scale is as follows:

1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly Agree.

QUESTIONS	1	2	3	4	5
1- I believe that artificial intelligence (AI) writing tools have improved my grammar and punctuation skills.					
2- Artificial intelligence (AI) writing tools help me organize my ideas more effectively.					
3- I feel more confident in my writing abilities when using artificial intelligence (AI) tools.					
4- I use artificial intelligence (AI) writing tools regularly for academic writing tasks.					
5- I prefer AI-assisted writing over traditional writing techniques.					
6- I worry that relying on artificial intelligence (AI) writing tools may hinder my writing development.					

7- What features of artificial intelligence (AI) writing tools do you find most beneficial for your academic writing? (you can choose more than one answer)

Spelling check

☐

Reformulating and paraphrasing

☐

Idea generation and brain storming

☐

Style suggestions and sentence structure

☐

Grammar correction and vocabulary enhancement

☐

8- Did you have negative experiences while using artificial intelligence (AI) writing tools?

Yes

☐

No

☐

If yes, please explain:

.....

9- What ethical concerns do you have about using AI tools for academic writing? (you can choose more than one answer)

Risk of plagiarism

☐

Misrepresent ideas and referenceste

☐

Bias in AI- generated content

☐

Over reliance on AI

☐

Violance of academic integrity

☐

10- In your opinion, what role should AI play in academic writing instruction?

.....

.....

.....

11- Please, share any additional thoughts or comments regarding AI tools and your academic writing experience.

.....

.....

.....

### Opinionnaire

1- Do you think that the questions are relevant to the topic of enquiry?

a) Yes

b) No

If no, please explain:

.....

.....

2- Are there unclear questions?

a) Yes

b) No

If yes, please mention them: Section(s) n°.....Questions(s)

n°.....

3- Are there irrelevant questions?

a) Yes

b) No

If yes, please mention them: Section(s) n°.....Questions(s)

n°.....

4- Are there questions that need to be included?

If yes, please write them down:

.....

.....

5- If you would like to add any suggestions, please feel free

.....

.....

### **The Questionnaire Validation Form**

I hereby confirm that I have reviewed the Questionnaire for the study conducted by Kanza KRIEM, a MA researcher at Mohamed Kheider University of Biskra. Constructive feedback and suggestions regarding the structure and content of the Questionnaire have been provided to the researcher.

#### **Expert's Approval**

Based on my review, I:

- ☐ Approve the questionnaire as it is.
- ☐ Approve the questionnaire with minor revisions.
- ☐ Recommend significant revisions before approval.

#### **Expert's Information**

Name:

Position:

University:

Email Address:

Phone number:

Date of validation:

Expert's signature:

**Researcher's Information**

Name: Kanza KRIEM

Email Adress: kanzakriem90@gmail.com

Mohamed Kheider University of Biskra

Faculty of Letters and Foreign Languages

Department of English Language and Literature

Appendix 4

Questions of the Interview: validating stage

Q1. Would you specify your gender please?

a) Male

b) Female

Q2. How many years of experience do you have in teaching academic writing?

.....

.....

Q3. How would you describe the overall academic writing level of your students?

.....

.....

Q4. How often do you notice students using AI tools in their academic writing?

.....

.....

Q5. What improvements (if any) have you observed in students' writing due to AI tools?

.....

.....

Q6. What negative effects (if any) have you observed in students' writing due to artificial intelligence (AI) tools?

.....

.....

**Q7.** Do you think AI tools impact students' ability to develop independent writing skills?

Why or why not?

.....

.....

**Q8.** What challenges do students face when using AI tools for academic writing?

.....

.....

**Q9.** Do you think AI tools should be integrated into academic writing instruction?

.....

.....

**Q10.** What strategies do you suggest for helping students use AI tools responsibly without becoming overly dependent?

.....

.....

**Q11.** Have you made any changes to your teaching methods or assessments due to students' use of AI tools? If yes, how?

.....

.....

**Q12.** Do you have any ethical concerns regarding students' use of AI tools in academic writing?

.....

.....



**Q13.** Would you like to add anything else about the impact of AI tools on academic writing?

.....

.....

### Opinionnaire

1. Do you think that the questions are relevant to the topic of enquiry?

b) Yes ☐

b) Not ☐

If no, please explain:

.....

.....

2. Are there unclear questions?

b) Yes ☐

b) No ☐

If yes, please mention them: Section(s) n°.....Questions(s)

n°.....

3. Are there irrelevant questions?

Yes ☐

b) No ☐

If yes, please mention them: Section(s) n°.....Questions(s)

n°.....

4. Are there questions that need to be included?

If yes, please write them down:

.....

.....

5. If you would like to add any suggestions, please feel free

.....  
.....

### **The Interview Validation Form**

I hereby confirm that I have reviewed the interview for the study conducted by Kanza KRIEM, a MA researcher at Mohamed Kheider University of Biskra. Constructive feedback and suggestions regarding the structure and content of the interview have been provided to the researcher.

#### **Expert's Approval**

Based on my review, I:

- ☐ Approve the interview as it is.
- ☐ Approve the interview with minor revisions.
- ☐ Recommend significant revisions before approval.

#### **Expert's Information**

Name: Prof.

Position:

University:

Email Address:

Phone number:

Date of validation:

Expert's signature:

#### **Researcher's Information**

Name: kanza KRIEM

Email Address: kanzakriem90@gmail.com

Mohamed Kheider University of Biskra

Faculty of Letters and Foreign Languages

Department of English Language and Literature

## Appendix 5

### Questionnaire for EFL Students

**Dear students,**

This questionnaire is part of a study exploring the effect of artificial intelligence (AI) writing tools on EFL students' academic writing. It aims to investigate students' perceptions of these tools, their effectiveness in enhancing students' writing skills, and the challenges they present in the learning process. You are kindly requested to tick (✓) the appropriate answer (s). Be assured that your responses will be anonymous.

### QUESTIONS

**Section one: Perceptions and Experiences with Academic Writing among EFL Students.**

**1- How would you describe your overall experience with academic writing in English?**

Very difficult

☐

Difficult

☐

Less difficult

☐

Easy

☐

Very easy

☐

2- What specific challenges do you face when writing academically in English? (You can choose more than one answer.)

Word choice	<input type="checkbox"/>
Organizing ideas	<input type="checkbox"/>
Limited vocabulary	<input type="checkbox"/>
Difficult with coherence	<input type="checkbox"/>
Grammar and punctuation mistakes	<input type="checkbox"/>

Others:.....  
.....

3- Which strategies do you use to improve your academic writing? (You can choose more than one answer.)

Outlining before writing	<input type="checkbox"/>
Revising and editing	<input type="checkbox"/>
Practicing writing regularly	<input type="checkbox"/>
Reading academic papers	<input type="checkbox"/>
Using AI tools	<input type="checkbox"/>

Others:.....  
.....

**Section two: EFL students' Perceptions towards Using Artificial Intelligence (AI) Tools in Academic Writing.**

Please indicate your level of agreement with the following statements by selecting one of the options:

1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly Agree.

QUESTIONS	1	2	3	4	5
<b>1-</b> I believe that artificial intelligence (AI) writing tools have improved my grammar and punctuation skills.					
<b>2-</b> Artificial intelligence (AI) writing tools help me organize my ideas more effectively.					
<b>3-</b> I feel more confident in my writing abilities when using artificial intelligence (AI) tools.					

4- I use artificial intelligence (AI) writing tools regularly for academic writing tasks.					
5- I prefer AI-assisted writing over traditional writing techniques.					
6- I worry that relying on artificial intelligence (AI) writing tools may hinder my writing development.					
7- I worry that AI-generated text does not always reflect my own writing style.					
8- Relying too much on AI writing tools may hinder my writing development.					
9- AI-generated content is not always reliable for academic writing.					
10- AI writing tools may encourage plagiarism if not used properly.					

11- I believe that AI should be used with teacher guidance in academic writing.					
---	--	--	--	--	--

12- What features of artificial intelligence (AI) writing tools do you find most beneficial for your academic writing? (you can choose more than one answer.)

Spelling check	<input type="checkbox"/>
Reformulating and paraphrasing	<input type="checkbox"/>
Idea generation and brain storming	<input type="checkbox"/>
Style suggestions and sentence structure	<input type="checkbox"/>
Grammar correction and vocabulary enhancement	<input type="checkbox"/>

Others:.....  
.....

13- Did you have negative experiences while using artificial intelligence (AI) writing tools?

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>

If yes, please explain:  
.....



**14-** What are the main difficulties you face when using AI writing tools? (You can choose more than one answer.)

Repetitive Content	<input type="checkbox"/>
Lack of Creativity	<input type="checkbox"/>
Incorrect Information	<input type="checkbox"/>
Misunderstanding Context	<input type="checkbox"/>
AI suggestions are not always accurate	<input type="checkbox"/>

Others:.....  
.....

**15-** What ethical concerns do you have about using AI tools for academic writing? (You can choose more than one answer.)

Risk of plagiarism	<input type="checkbox"/>
Misrepresent ideas and references	<input type="checkbox"/>
Bias in AI- generated content	<input type="checkbox"/>
Over reliance on AI	<input type="checkbox"/>
Violation of academic integrity	<input type="checkbox"/>

Others:.....  
.....

**16-** In your opinion, what role should AI play in academic writing instruction?

.....  
.....

**17-** Please, share any additional thoughts or comments regarding AI tools and your academic writing experience.

.....

.....

## **Appendix 6**

### **Teacher's interview**

This interview is part of a study exploring the effect of artificial intelligence (AI) writing tools on EFL students' academic writing. The study aims to investigate students' perceptions of these tools, their effectiveness in enhancing students' writing skills, and the challenges they present in the learning process. Additionally, this interview serves to cross-check students' perspectives with teachers' insights.

The study seeks to answer the following questions:

RQ1: How do EFL students perceive the usefulness and effectiveness of AI writing tools in improving students' academic writing?

RQ2: What challenges do EFL students face when integrating AI tools into their academic writing process, according to teachers?

Questions of the Interview

**Q1.** How would you describe the overall academic writing level of your students?

.....

.....

**Q2.** How often do you notice students using AI tools in their academic writing?

.....

.....

**Q3.** What improvements (if any) have you observed in students' writing due to AI tools?

.....

.....

**Q4.** What negative effects (if any) have you observed in students' writing due to artificial intelligence (AI) tools?

.....

.....

**Q5.** Do you think AI tools impact students' ability to develop independent writing skills?  
Why or why not?

.....

.....

**Q6.** What challenges do students face when using AI tools for academic writing?

.....

.....

**Q7.** Do you think AI tools should be integrated into academic writing instruction?

.....

.....

**Q8.** What strategies do you suggest for helping students use AI tools responsibly without becoming overly dependent?

.....

.....

**Q9.** Have you made any changes to your teaching methods or assessments due to students' use of AI tools? If yes, how?

.....

.....

**Q10.** What ethical concerns do you have regarding students' use of AI tools in academic writing?

.....

.....

**Appendix 7****Opinionnaire**

1. Do you think that the questions are relevant to the topic of enquiry?

c) Yes ☐

b) Not ☐

If no, please explain:

.....  
.....

2. Are there unclear questions?

c) Yes ☐

b) No ☐

If yes, please mention them: Section(s) n°.....Questions(s)

n°.....

3. Are there irrelevant questions?

b) Yes ☐

b) No ☐

If yes, please mention them: Section(s) n°.....Questions(s)

n°.....

4. Are there questions that need to be included?

If yes, please write them down:

.....  
.....

5. If you would like to add any suggestions, please feel free

.....  
.....

## **Appendix 8**

### **The Questionnaire Validation Form**

I hereby confirm that I have reviewed the interview for the study conducted by Kanza KRIEM, a MA researcher at Mohamed Kheider University of Biskra. Constructive feedback and suggestions regarding the structure and content of the interview have been provided to the researcher.

#### **Expert's Approval**

Based on my review, I:

- ☐ Approve the questionnaire as it is.
- ☐ Approve the questionnaire with minor revisions.
- ☐ Recommend significant revisions before approval.

#### **Expert's Information**

Name: Prof.

Position:

University:

Email Address:

Phone number:

Date of validation:

Expert's signature:

#### **Researcher's Information**

Name: kanza KRIEM

Email Address: kanzakriem90@gmail.com

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Department of English Language and Literature

## **Appendix 9**

### **The Interview Validation Form**

I hereby confirm that I have reviewed the interview for the study conducted by Kanza KRIEM, a MA researcher at Mohamed Kheider University of Biskra. Constructive feedback and suggestions regarding the structure and content of the interview have been provided to the researcher.

#### **Expert's Approval**

Based on my review, I:

- ☐ Approve the interview as it is.
- ☐ Approve the interview with minor revisions.
- ☐ Recommend significant revisions before approval.

#### **Expert's Information**

Name: Prof.

Position:

University:

Email Address:

Phone number:

Date of validation:

Expert's signature:

#### **Researcher's Information**

Name: kanza KRIEM

Email Address: kanzakriem90@gmail.com

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Faculty of Letters and Foreign Languages

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### ملخص الدراسة

الكتابة الأكاديمية مهارة أساسية في التعليم العالي، تتطلب الوضوح والترابط والدقة. مع التطور السريع للذكاء الاصطناعي، ظهرت أدوات متنوعة لدعم وتحسين جودة الكتابة. هدفت هذه الدراسة بشكل رئيسي إلى دراسة تأثير أدوات الذكاء الاصطناعي على مهارات الكتابة الأكاديمية لدى طلاب اللغة الإنجليزية كلغة أجنبية، وما إذا كانت هذه الأدوات تُعزز أو تُعيق قدراتهم الكتابية، بناءً على تصورات المتعلمين. ولتحقيق أهداف البحث، تم اعتماد نهج نوعي إلى جانب تصميم دراسة حالة. تضمنت المنهجية استخدام استبيان شبه منظم كطريقة رئيسية لجمع البيانات، والذي طُبّق على عينة صغيرة (n = 30) من طلاب الماجستير في قسم اللغة والأدب الإنجليزي بجامعة بسكرة. أما الطريقة الثانية، فقد اقتصرَت على المقابلات مع الأساتذة للتحقق من اتساق آراء الطلاب مع آراء الأساتذة. أظهرت النتائج أن الطلاب يدركون جيدًا كيفية استخدام الأدوات بشكل انتقائي، ويؤكدون أنها أدوات داعمة فقط. من الناحية الأخلاقية، أشارت النتائج إلى خوف الطلاب من سوء الاستخدام، لا سيما فيما يتعلق بالانتحال وغياب النزاهة الأكاديمية. كان موقف المعلمين سلبياً تجاه استخدام أدوات الذكاء الاصطناعي، إلا أنهم يؤيدون الاستفادة منها تحت إشراف وتوجيه متخصصين. وتختتم هذه الدراسة بالتوصية بإجراء المزيد من البحوث على نطاق أوسع وأكثر تنوعاً، إلى جانب استكشاف الأساليب الحديثة ووضع مبادئ توجيهية أخلاقية للاستخدام الأمثل لأدوات الذكاء الاصطناعي في التعليم.

**الكلمات المفتاحية:** الكتابة الأكاديمية، الذكاء الاصطناعي، طلاب اللغة الإنجليزية كلغة أجنبية، التصورات.