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Exploring the EFL Students' Perceptions of the Overreliance on Artificial Intelligence Writing Tools on their Critical Thinking, Decision-making, and Originality

The case of Master One Students of Sciences of Language at Biskra University

A dissertation submitted in partial fulfillment of the requirements for a
Master's Degree in English: Sciences of Language

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Declaration

I, **Lamia Athamnia,** hereby declare that this dissertation is entirely my original work which has not previously submitted as a whole or partial. All the sources that I used have been appropriately cited and acknowledged. And I declare that the data used has not been fabricated or manipulated.

Dedication

Nothing is left for the world to offer me

My family have already given me everything.

I dedicate this work:

*To **myself**, for the sleepless nights, silent battles, and the strength to rise every time I fell.*

*To my first love, my peace, and my pillar, **My Father,** who believed in me even when I could not, and who stood tall for me whenever I needed.*

*To my heaven, my safe home, and the purest soul I know, **My Mother,** the reason behind every step I have taken and whose prayers were the wind beneath my wings.*

*To my dearest brothers **Salah-Eddine, Abdelhak, Abdel-majid (my Tom),** thank you for being part of my strength.*

*A special thanks to my brother **Fouad,** for being always there for me, you never hesitated, and never said "no" your generosity means more than words can ever say.*

*To my one and only sister **Zohra,** you carried me when I could not carry myself and I can never thank you enough.*

*To my little stars, **my nieces and nephews,** and **my sisters-in-law**.*

*To **all my friends**, thank you for every word of encouragement and every kind gesture that helped me keep going.*

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Finally, I would like to thank first year Masters' students who participated in answering my questionnaire.

Abstract

Artificial Intelligence writing tools are widely used and integrated into higher education particularly among English as a Foreign Language (EFL) contexts. However, it is unfortunate that some university students are over-relying on these tools to complete their academic assignments without engaging deeply in the learning process. For this reason, the present study aimed to explore students' perceptions about the impact of over-reliance on AI writing tools on their soft skills development. Seeking to answer the research questions about students' awareness of the potential risks associated with the excessive use of these tools on their critical thinking, decision-making, and originality. A mixed-methods case study design was employed, involving 28 master one Students enrolled in Science of language program at Mohammed Kheider University, Biskra. Data were collected through a semi-structured questionnaire then analyzed via SPSS (closed-ended questions) and thematic analysis (closed-ended questions). The findings revealed a mixed perceptions. While AI writing tools have numerous advantages that assist students, many reported a decline in their critical thinking, decision-making, and originality due to the over- reliance on these tools. Furthermore, it showed that some students expressed less motivation to develop their soft skills as they prefer easy, timeliness, and effortless work over being cooperative with their learning mainly in writing. These results highlight the need for pedagogical intervention to promote a balanced AI integration with the development of cognitive engagement in academic writing.

Keywords: AI writing tools, critical thinking, decision-making, originality, over-reliance

List of Abbreviations

AGI	Artificial General Intelligence
AI	Artificial Intelligence
AIEd	Artificial Intelligence in Education
APA	American Psychological Association
ChatGPT	Chat Generative Pre-trained Transformer
CTS	Critical Thinking Skills
DL	Deep Learning
EFL	English as a Foreign Language
ESL	English as a Second Language
LLM	large language model
ML	Machine Learning
NLP	Natural Language Processing

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General Introduction

1. Background of the Study

When it comes to communicating complex ideas, particularly in writing, EFL (English as a Foreign Language) learners face numerous challenges. According to researchers, writing a complex process that requires multifaceted development rather than being a mere skill. AS Grape and Kaplan (2014) argued that "Writing - particularly the more complex composing skill valued in the academy - involves training, instruction, practice, experience, and purpose."(p. 6). For these learners, writing goes beyond grammar and vocabulary; it also involves critical thinking, decision-making, and originality as key aspects of their education.

Higher education students are required to develop a variety of soft skills such as those that strengthen their critical thinking, problem solving, communicate effectively, and collaborate with others, thus providing them with the tools necessary to approach complex assignments and engage in depth with the learning material. These skills are especially valuable for EFL learners. For instance, writing assignments encourage students to engage in creative and original expression, enabling them to share personal insights and offer unique perspectives.

These challenges that Algerian EFL learners experience have shaped the popularity of AI writing tools in educational settings, including widely used platforms such as Grammarly, ChatGPT, and Word Tune. These writing tools offer a range of writing assistance: grammar correction, vocabulary improvement, and generating content. These feature that enable AI writing tools to offer immediate feedback and personalized support, hence helping learners of the English language to refine their writing and improve their language proficiency. However, with the growing reliance on these AI writing tools comes growing apprehensions about excessive dependence unless there is a serious rethinking about the way Algerian EFL learners use AI writing tools.

2. Statement of the Problem

In higher education, developing fundamental soft skills such as critical thinking, decision-making, and originality is as crucial as learning subject matter. However, as Artificial Intelligence (AI) writing tools gain widespread popularity among students, particularly EFL Learners at Biskra University, an increasing number of students are turning to these tools for tasks that require critical thinking, originality, and in-depth analysis. Despite the fact that these AI writing tools offers valuable features such as grammar checks, immediate feedback, and content generation, this dependency is likely to have a negative impact on students' ability to fully engage in the writing process. By simplifying certain aspects of writing, these tools may limit students' opportunities to develop their unique voice, as well as to engage in the stages of topic development, problem definition, and argument construction.

When students over-rely on AI writing tools for writing assistance, they may unintentionally lose confidence in their writing abilities and become less motivated to develop these abilities through feedback. Moreover, this reliance may discourage students from completing complex writing assignments and tasks on their own, encouraging the habit of seeking external support rather than using their own abilities. To ensure that students develop proficiency in the practical and soft skills necessary for academic success, it is crucial to address these concerns. The purpose of the study is to explore how EFL students perceive the potential effects of an excessive dependence on these tools on their soft skills, particularly in writing.

3. Research Questions

This research aims to answer the following questions:

RQ1: How do students perceive the impact of AI writing tools on their critical thinking, decision-making and originality in academic writing?

RQ2: What are the perceived impacts of overreliance on AI writing tools on students' soft skills in academic writing?

4. Aim and Objectives

This study aims to:

- To explore the perceptions of first-year Master's students' regarding the impact of over-reliance on AI writing tools on their development of key soft skills (critical thinking, decision-making, and originality)

It will be guided by the following objectives:

- To explore how students perceive the role of AI writing tools in their academic writing processes.
- To explore how over-reliance on AI writing tools may impact students' development of essential soft skills, particularly critical thinking, decision-making, and originality.

5. Research Methodology

According to the nature of the research problem, which is about a particular educational trend, the proposed questions, along with the range of aims and objectives, this research adopted a case study design within the pragmatic paradigm. As it is best suited for exploring complex social phenomena for a particular group, making it appropriate for this study, which aimed to understand students' perceptions of the over-reliance on AI writing tools and their impact on their soft skills. The current study focused on exploring how students perceive the impact of these tools on their soft skills (critical thinking, decision-making and originality) and how the overreliance on such tools may hinder the development of these skills. Accordingly, we opted for a convergent parallel mixed methods approach, where both qualitative and quantitative data were collected simultaneously through an online mixed-format questionnaire (a mix of open-ended and closed-ended questions).

The target population for this study consist of English as a Foreign Language Learners (EFL) in the English Department at Biskra University. More precisely, the chosen sample included first-year Master's

students' in the Sciences of Language branch. The researcher selected this sample because these students have three years of writing experience and are familiar with AI writing tools since its emergence in the Algerian context. It employed a Voluntary response sampling technique, a non-random sampling method. Where participation was open to first-year Master's students at Biskra University who choose to respond to the online questionnaire. Ethical considerations, including informed consent and confidentiality are ensured.

The online-questionnaire have been administered to first-year Master's students to gather their perceptions on the role that AI writing tools plays in their writing processes. Identifying the students' preferred AI tool and highlighting their views on writing in the era of AI writing tools. Moreover, uncover their overreliance on AI generated content and its impact on their soft skills (critical thinking, decision-making, and originality. 28 participants answered the questionnaire providing both open-ended and closed-ended data. The closed-ended questions were analyzed using SPSS, while thematic analysis were used to analyze the open-ended questions to explore a deeper insight.

The present study follows the American Psychological Association (APA) 7th edition Writing Style because it is widely used in the field of social sciences, education, and linguistics, making it suitable choice in our research

6. Significance of the Study

In the past three years, university students in Algeria, particularly in Biskra, have become increasingly familiar with AI writing tools such as, ChatGPT. As a result, this study focuses on writing, as students at this educational level are frequently required to produce assignments and essays, which can impose considerable pressure on them. Furthermore, AI writing tools accessibility and ease access may lead to a growing reliance on these resources. This research seeks to understand how overreliance on AI writing tools affects students' abilities to develop essential soft skills, including critical thinking, decision-making

and originality. In addition, the study aims to raise awareness among students and teachers regarding the unintended negative impacts of the over-reliance on AI writing tools, thereby informing educational policies and strategies that may promote the responsible use of AI in learning and teaching environments.

7. Structure of the Dissertation

This dissertation included the following chapter:

The general introduction provides an overview of the study. It presents the background of the study, statement of the problem, the research questions and aim of the study, and significance of the study.

In chapter one, we present the theoretical framework of soft skills in EFL learning and writing, emphasizing Critical thinking, decision-making, and originality. It gives an overview of these skills and its definitions, highlighting their importance in higher education and writing as well as discussing frameworks such as Bloom's Taxonomy and Boden classification of creativity. In addition, this chapter also explores AI writing tools in the EFL context, covering its definitions, brief history, some key concepts (ML and NLP), and their role in education and writing. It shed the light on the benefits, limitations, and ethical concerns of using these tools in the teaching and learning process, particularly in relation to developing students' soft skills.

The second chapter outlines the research methodology opted in this study, which used a convergent parallel mixed-methods design within an exploratory case study framework. The aim of this chapter is to explain why and how the research was designed, data were collected, and analyzed.

In this chapter, the researcher presents the findings from both quantitative and qualitative data collection. In addition, the organization and discussion of these findings based on the research questions and the relevant literature of the study.

The general conclusion summarizes the key findings, provide conclusions, and discusses the study limitations. Furthermore, it offers recommendations for future research and pedagogical practice.

Chapter I : Literature Review

Introduction

In the past few years, the term Artificial Intelligence become widely known and frequently used among students and teachers. AI writing tools, such as ChatGPT and Grammarly offer numerous advantages for students in enhancing their learning particularly in higher education. despite the fact that these tools assist students in generating, refining, and structuring their written work, there are growing concerns about their impact on students' soft skills, namely critical thinking, decision-making, and originality, due to their increasing integration in education. These soft skills plays a crucial role in students' personal, academic, and professional growth. However, the overreliance on AI writing tools may unintentionally lead students to reduce their ability to engage in independent cognitive processes, such as critical thinking, decision-making, and maintain originality while writing.

1. Soft Skills in Writing

1.1 Definition of Soft Skills

The literature contains wide variety of definitions of soft skills. The Collins English Dictionary defines "soft skills" as "desirable qualities for certain forms of employment that do not depend on acquired knowledge: they include common sense, the ability to deal with people, and a positive flexible attitude." emphasizing traits such as adaptability and interpersonal competence. Nevertheless, the use of unspecific words such as "common sense" and "positive flexible attitude" makes this definition operationally vague and raises issues concerning how these characteristics are detected or evaluated in reality. Furthermore, it oversimplifies soft skills emphasizing that they cannot be acquired knowledge yet many studies and scholars have proven that soft skills can be developed through training and education.

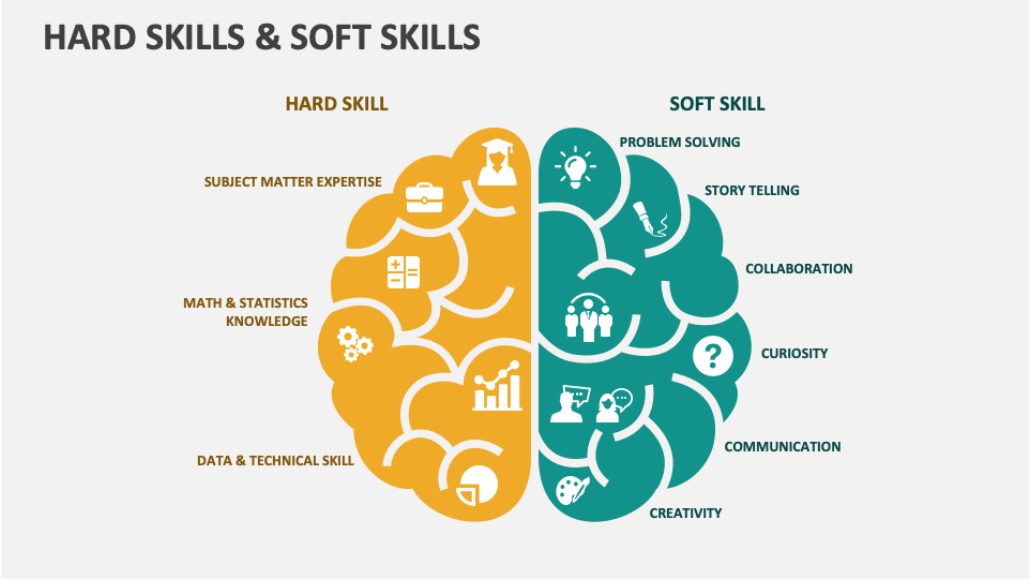
Researchers further define soft skills, which are known also as generic skills, life skills, interpersonal skills, and people skills, as personal traits and social abilities that complement technical skills in both personal and professional settings (Padhi, 2014; Rani, 2017; Tyschenko, 2023). A significant

classification of these skills distinguishes between self-oriented (intrapsychic) skills and other-oriented (interpersonal) skills. The former refers to the abilities an individual must comprehend and develop independently (e.g., critical thinking), while the latter includes skills that can be developed through interactions with others (e.g., teamwork). Such difference can also be framed in terms of personal and social skills. Personal skills primarily represent cognitive abilities, whereas social skills involve the ability to build and maintain relationships with others (Cimatti, 2016).

This distinction is critical for EFL contexts, where language learning essentially demands both cognitive reflection (e.g., grammar analysis) and social interaction (e.g., group discussions). In contrast to

Figure 1

Differences between Hard and Soft Skills



Note: Adopted from (Collidu, 2024)

hard skills, which are often technical and quantifiable, soft skills are more challenging to observe, quantify, and measure. Some examples of both skills types are presented in **Figure 1**. Soft skills are learned behaviors that require focused training and practice (Rani, 2017; Vasanthakumari, 2019). Due to these differences schools often prioritize to teach technical skills, despite the fact that employers increasingly value soft skills, such as communication, to adequately prepare individuals for both academic

and professional environments. Therefore, soft skills training should begin during students' educational years (Vasanthakumari, 2019).

Tony Wagner, a Harvard-based education expert (as cited in Friedman, 2010), states that "there are three basic skills that students need if they want to thrive in a knowledge economy: the ability to do critical thinking and problem-solving; the ability to communicate effectively; and the ability to collaborate." According to Wagner's assertion, critical thinking, problem-solving, effective communication, and collaboration are essential skills for students. These skills cover a broad range of qualities, traits, and attributes. However, he narrowed the focus on three skills which overlooks culturally specific competencies, such adaptability and creativity...etc. which are crucial in multilingual EFL settings.

1.2 The Importance of Soft Skills in EFL Classrooms

According to recent studies, improving students' employability and adaptability requires integrating soft skills into English as a Foreign Language (EFL) classes. "Students are expected to learn, remember, make decisions, analyze arguments, and solve problems without ever being taught how" (Halpern, 1987, p. 69). The importance of soft skills is frequently emphasized by employers, who point out a gap between graduates' competencies and workplace requirements, particularly in areas such as communication and time management that are recognized crucial soft skills for EFL learners (Taylor, 2016; Tabieh et al., 2021). Furthermore, Macqual et al. (2021), argued that "If technical skills earn a job, soft skills facilitate success on the job, thereby creating more opportunities" (p. 2). However, higher education institutions attempt to define, prioritize, and systematically incorporate these skills into their curricula, reflecting a lack of agreement on how to effectively develop them (Tevdovska, 2015).

In addition, incorporate soft skills such as critical thinking, creativity, and communication and collaboration, known as the 4Cs, into English as a Foreign Language (EFL) instructions is essential to prepare learners linguistically and culturally (Gembaruk, 2024; Tevdovska, 2015). While EFL

methodology courses have proven effective in promoting communication and collaboration (Gembaruk, 2024), the enhancement of critical thinking and creativity remains inadequate. The challenges posed by the COVID-19 pandemic has significantly increased the necessity for these skills, as employers expect EFL graduates to presents a strong communication abilities and adaptability (Tabieh et al., 2021).

Studies show that despite the acknowledged importance of soft skills, many high school students struggle with fundamental abilities such as collaboration and problem-solving (Ellah & Azmi, 2023). Scholars argue to take into account implementing soft skills using technology-supported approaches within classroom activities to address this gap. Team-based assignments that adopt technological platforms, for instance, can enhance critical thinking and creativity in language education (Tevdovska, 2015; Ellah, & Azmi, 2023). The objective of these strategies is to meet the identified need in the teaching of English as a Foreign Language (EFL) and the actual demands of the job market.

2. Key soft skills in writing

In higher education, it is crucial for students to improve their soft skills such as critical thinking, decision making, and originality. Understanding how and when to use these skills, as they complement each other, in any academic work help students to navigate an effective academic journey.

2.1 Critical thinking

2.1.1 Definitions of Critical Thinking

Researchers and Scholars have provided various definitions for critical thinking, emphasizing its significance in evaluating information. For instance, Paul et al. (1989) describes the characteristics of a critical thinker in order to define critical thinking. According to them a critical thinker is someone who carefully and deeply analyzes and assesses ideas rather than passively accepting them. A critical thinker avoids taking information for granted, questions reasoning, and critically examines evidence critically,

and avoids taking information for granted. Moreover, they identify weaknesses in arguments, clarify assumptions, and distinguish between strong and weak reasoning to develop well-founded conclusions. Later in 1990, Paul expanded on this by differentiating between different types of critical thinking. He argued that the most effective ways to approach a particular mode or topic of thought are exemplified by critical thinking, which is both self-directed and disciplined. Critical thinking can be divided into two types. The first one is sophistic or weak-sense critical thinking, which serves the interests of an individual or group at the expense of other appropriate individuals or groups. The second type, fair-minded or strong-sense critical thinking, involves a disciplined consideration of the interests of multiple people or groups.

On the other hand, Ennis (1985) view critical thinking as "reasonable, reflective and skillful thinking is focused on deciding what to believe or do." (p. 46) which highlights the practical and evaluative nature of critical thinking in decision-making processes. Although these definitions vary in scope, they all examine its importance in terms of reasoning, analysis, and reflective judgment. This indicates that critical thinking is a complex ability that is beneficial in both academic and professional environments. Each of these definitions have its limitations, as finding an adequate definition for a concept such as critical thinking is challenging, and a single definition cannot meet everyone's requirements.

2.1.2 The importance of critical thinking in higher education

Critical thinking in today's digital world, where information is easily accessible and widely available, is highly recommended to be integrated into higher education curricula. An experimental study conducted by Davidson and Dunham (1996) utilized the Ennis-Weir Critical Thinking Essay Test to assess EFL students' critical thinking progress. The experiment was carried out on a 36 Japanese students. A control group were taught content-based intensive English instruction, while the experimental group received additional training in critical thinking. The results of the study showed a notable improvement in critical

thinking skills among the experimental group, suggesting that critical thinking can be successfully integrated into of the EFL/ESL educational system.

Another study conducted by Pei et al. (2017) with the aim of examining the correlation between critical thinking skills and EFL argumentative writing performance among Chinese university students. They selected 110 majors' students from three different academic years across two universities in China. The students were administered two tests: a critical thinking skills test and an EFL argumentative writing test. The results showed that Chinese undergraduate English majors did not have strong critical thinking skills (CTS were not significantly correlated with their EFL argumentative writing performance). However, students with higher CTS performed better in terms of relevance, clarity, logicality, profundity, and flexibility. These findings suggest that critical thinking should be integrated into EFL writing instruction to enhance students' argumentative writing skills. Although it is essential for students to develop their analytical abilities to be prepared for their future professional careers, universities and the education system as a whole often overlook these skills and focus primarily on developing students' language skills.

2.1.3 Critical Thinking within EFL Writing

Among the four language skills, writing is cognitively demanding and requires multiple processes. From a linguistic viewpoint, Arapoff (1967) argued that writing is a cognitive process that represents much more than the mere visual representation of spoken language. It fundamentally involves a purposeful selection and organization of experience. When writing, the students must keep in mind their purpose, think about the facts they will need to select which are relevant to that purpose, and think about how to organize those facts in a coherent fashion. The process of learning to write is largely a process of learning to think more clearly. (p. 33)

In the same regard, scholars argue that writing is not merely a skill but a complex process requiring multifaceted development as Grape and Kaplan (2014) stated "“Writing is not a linear process; instead, it

involves the complex combination of content information, rhetorical demands, and reader interpretation." (p.36). Teachers need to go beyond training students' **what** to memorize in terms of vocabulary and grammar rules, giving more attention to train them **how** to think by synthesizing, analyzing, evaluating, and questioning information. Furthermore, composing an essay necessitates that the writer examines reasons and assesses the topic, which involves critical thinking skills and demands a higher level of cognitive engagement. In other words, the level of thinking ability influences the quality of writing.

2.1.4 Bloom's Taxonomy and its Relevance to EFL Writing

A well known framework for categorizing cognitive processes is "Bloom's Taxonomy". Bloom's levels of criticality, as cited in Gupta (2024), divides them into: knowledge, comprehension, application, analysis, synthesis, and evaluation (Bloom, 1956). In a valuable structure for understanding how learners interact with materials and strengthen critical thinking skills, each level reflects a more complex way of thinking.

In the EFL writing context, each writing tasks and objectives can correspond each level. **Table 1**, based on Davies' Interpretation (2015) of Bloom's Taxonomy (1959), shows how these levels can be linked to reasoning.

Table 1 Hypothetical Model Linking Levels of Criticality to EFL Writing Process Stages.

Levels of Criticality	Example in EFL Writing
Knowledge	Students define key writing terms (e.g., thesis statement) or recall grammar rules.
Comprehension	Students explain why a thesis statement is essential for structuring an essay.
Application	Students write a short paragraph applying a clear thesis statement.

Analysis	Students compare two different essay introductions, noting strengths.
Synthesis	Students integrate ideas from multiple sources into a cohesive essay.
Evaluation	Students critically evaluate peer essays, suggesting improvements.

***Note**:* Adopted from Bloom (1956) and Davies (2015, p. 83-84).

There is a gradual shift of complexity from a simple recall of grammar rules/thesis statement (knowledge), explaining their importance in the structure of the essay, applying these information in an actual writing production. To a more complex tasks, such as analyzing different essays introductions, synthesizing ideas from multiple sources, and finally evaluating the overall process suggesting improvements. “The data presented are hypothetical and used for illustrative purposes only."

Critical thinking is often associated with other essential skills among them decision-making and originality, and it is crucial for students in higher education to develop these cognitive skills.

2.2 Decision-making

2.2.1 Definitions of Decision-making

As discussed earlier, Ennis (1985) used the term critical thinking interchangeably with related concepts such as decision-making. Although, Critical thinking and decision-making are closely related, it is important to distinguish between the two as they often complement one another. To make good decisions, we need to think critically by analyzing information and evaluating consequences. As well as for critical thinking itself that requires the ability to decide and select which perspective to opt and which evidence to prioritize.

Decision-making can be defined as the ability to select the most appropriate and workable solution among a set of options, based on the decision-maker’s cognitive skills i.e. to determine a guilt or innocence in a court of law, or to decide patient serious illness by a medical doctor. This perspective align with

various scholarly definitions. Collins Dictionary (n.d.) defines decision-making as "the process of reaching decisions, especially in a large organization or in government." In the same vein, Schoemaker and Russo (2016) describe it as the process through which an individual, group, or organization determines the courses of action to take based on specific objectives regarding available resources.

These definitions share a common perspective that decision-making is a process of selecting the most appropriate option; however, they differ in scope. The Collins Dictionary emphasize on the organizational and governmental context, while Schoemaker and Russo (2016) adopt a broader view that includes both groups and individuals. This variety suggests that decision-making is a complex process shaped by context, objectives, and the resources available. Furthermore, decision-making is a progressive process that involves several stages, including identifying the problem, gathering relevant data, evaluating possible options, and reflecting on prior experiences

2.2.2 Decision Making Process

Decision-making is a fundamental cognitive process that involve identifying the problem, evaluating predictable solutions, and selecting the most appropriate action. More precisely, researchers have outlined eight steps in the decision-making process that guides decision-makers from clarifying the core problem to validating the workability of the selected solution. (Taherdoost & Madanchian, 2023). **Figure 2** show the following steps:

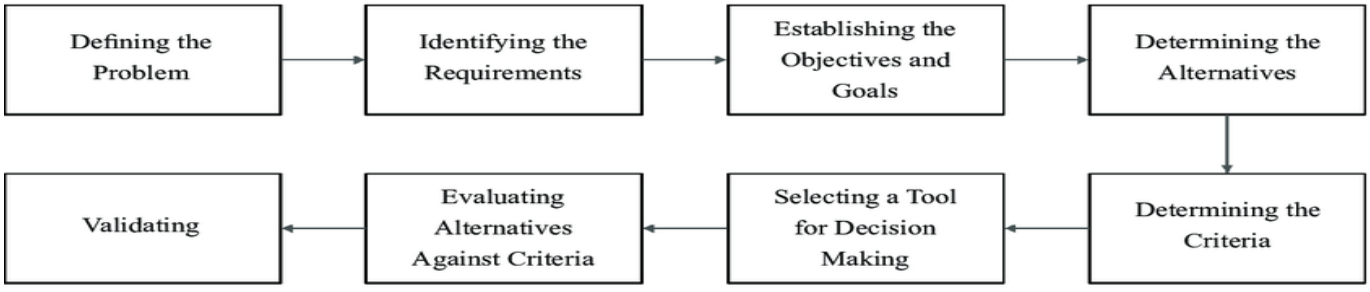


Figure 2 Decision-Making Process Steps

Note. Reproduced from "Decision Making: Models, Processes, Techniques", by H. Taherdoost & M. Madanchian, 2023. Copyright 2023 by Universal Wise Publisher.

- **Defining the Problem:** the first and most significant step decision-makers need to do is stating clearly the issue or problem to set the decision scope. This step may be seen as unimportant, obvious, and many people skip it. However, it ensures articulating the right issue which, consequently, leads to the logical and right solution and it prevents from wasting effort, irrelevant strategies, and diminishing the entire process. In this matter an unnamed Yale professor (as cited in Quoteresearch, 2014) once stated "If I had an hour to solve a problem, I'd spend 55 minutes thinking about the problem and 5 minutes thinking about solutions".
- **Identifying the requirements:** the second step is about gathering all the information and data required, such as relevant sources, experts, timelines... etc. to be effectively acknowledged about the issue.
- **Establishing the objectives and goals:** the next step is to highlight the outcomes to be reached by the end of this decision. It directs the decision-makers minds to the purpose behind the whole process and it helps in staying focused.
- **Determining alternatives:** this steps includes brainstorming different options for the possible solutions. This step assists in checking systematically and effectively the varied choices.
- **Determining the criteria:** from the set of options listed in the previous step, the decision makers need to clarify the factors affecting the choice the most. This factors could be time, quality, or limitations.
- **Selecting a tool for decision-making:** the next step is deciding the methodology or structure to be used that fit the decision complexity. It helps in facilitating the process through organization and evaluation, such as, using chart or score systems.
- **Evaluating alternatives against criteria:** in this step, each of the options are evaluated based on the criteria selected to check which of this options best fit and matches the goals to be reached. Highlighting and comparing the feasibility, risks, and rewards of each option.

- **Validation:** the final step is to confirm the solution opted reliability before taking the final decision. It helps to know whether or not the decision achieve the intended goals.

2.2.3 The Role of decision-Making in Writing Process

Hayes and Flower (1980) argue about the decision-making nature of writing in their work. Writing is not a linear process of simply putting words on a paper, instead it is a process that involves continuous cognitive skills including making decisions. Writing involves three major processes that are: the planning process, which consists of sub-processes generating, organizing, and goal-setting, the translating process, and the reviewing process with reading and editing as sub-processes (Hayes & Flower, 1980, p. 12).

As it is essential to explore how these two processes interact to shape the final writing product, this is a constructional conceptual link between decision-making and writing processes, adopting the eight stages of decision-making process (Taherdoost & Madanchian, 2023) align with the writing process (Hayes & Flower, 1980), to better understand how writers make decisions during the writing process.

- **Planning (Generating) / Defining the Problem and Identifying Requirements**

The first step in producing any piece of writing is to identify what to write about. Students or writers have to decide what topic to be addressed, the targeted audience, and the purpose of writing generating information from the writing task guidelines and their long-term memory. Paying attention to the requirements/conditions of the problem or task in terms of word limit, type of writing (academic or creative writing), and genre (argumentative, scientific) etc.

- **Organizing Ideas and Goal-setting / Establishing Objectives and Determining Alternatives**

Selecting the most appropriate ideas from the **generating process** in order to arrange them in the writing roadmap. Some of these ideas not necessarily will be included in the text; however, it helps to guide, evaluate, and shape the text by understanding what the writer need to reach at the end of this piece

of writing. It can consider some features such as, the audience (to persuade, inform, explain, or tell a story/anecdote), and the text (transitions, simplicity). These criteria act as standards to judge the text and ensure it aligns with the writer's goals. Furthermore, it will be stored and later used in the **editing** phase.

- **Translating (drafting) / Determining criteria and Selecting Decision-Making Tool**

In this stages, writers starts the actual writing by translating their thoughts into the paper. They may consider some decisions about the flow of arguments, style, vocabulary, grammatical accuracy, cohesion and coherence.

- **Reviewing / Evaluating Alternatives against Criteria**

Writers review their drafts comparing between the different sentence structure, word choice, clarity… etc. and how this written product or composition will be assessed (peer feedback, self-evaluation, teacher...). In addition, evaluate and improve the text produced in the translation phase by correcting some weaknesses of spelling and grammar mistakes.

- **Reading and Editing / validating the decision**

The final stage in which the written product is finalized. At this stage the writer make sure to proofread his/her writing and if it aligns with the objectives and the selected criteria. In addition, validate the writing decisions made in the previous phases.

2.3 Originality

In the literature, defining originality can be challenging, as it is not extensively studied as an independent skill. Instead, it is often overlaps with other concepts such as creativity and authenticity. Originality can be defined as a new way of doing something that has possibly not been done before as well as presenting novel/unique ideas. Whereas, creativity is broader and refers to generating new and

imaginative ideas. In the teaching and learning context, originality is about guiding students to think independently and be authentic in their work to maintain the academic integrity and avoid plagiarism.

Originality is an essential component of creativity as the capacity to generate new ideas expands to the broader creative thinking process. “Creativity is the ability to come up with ideas or artefacts that are new, surprising and valuable. ‘Ideas’ here include concepts, poems, musical compositions, scientific theories…” (Boden, 2004, p. 1). In other words, a creative person is someone who have the ability to think outside of the box and develop innovative ideas.

On the other hand, Torrance (1977) considers originality one of the five main components of creativity that are: **fluency** (the capacity to generate a significant amount of ideas), **flexibility** (the capacity to generate a range of ideas or use different methods, **elaboration** (the capacity to elaborate on the specifics), and **redefinition** (the capacity to interpret or understand in a manner that deviates from the conventional, recognized, or intended perspective) and he described **originality** as “the ability to produce ideas that are off the beaten track” (p.17). However, originality does not necessarily mean extreme novelty (Boden, 2004). This means that originality is about presenting existing ideas in a unique and personal way rather than inventing entirely new ideas.

2.3.1 Boden classification of creativity

To further explore the dynamic relationship between originality and creativity, it is valuable to consider Boden’s (2004) classification of creativity. It provide a comprehensive model of how different range of creative processes can form different ways for originality. According to Boden (2004) creativity is classified into three types:

- **Exploratory creativity**: it is the exploration of the conceptual space. In other words, generating new ideas within an existing framework (e.g. theory in science). Originality here is represented in

using a known theory to an existing framework such as, using classic communication to examine social media interactions.

- **Transformational creativity**: Breaking and redefining the conceptual space to produce new ideas and radically different (Einstein's theory of relativity). This type is somehow rare but it is essential in revolutionary researches in any field.
- **Combinational creativity:** which means mixing unusual combinations of familiar ideas in new ways. (e.g. metaphors). This aligns with originality in terms of reinterpreting or synthesizing existing literature.

2.3.2 The Importance of Originality in Writing

In writing, originality refers to students' ability to translate their thoughts and unique voice through their work, resulting productions that are both novel and creative. Baptista et al. (2015) "Originality is not only related to an outcome or product, but also to the overall process of producing an outcome".

Note: retrived from Plagiarism: Copyright vs: Plagiarism: Drawing the Line in Academic Writing (2025).

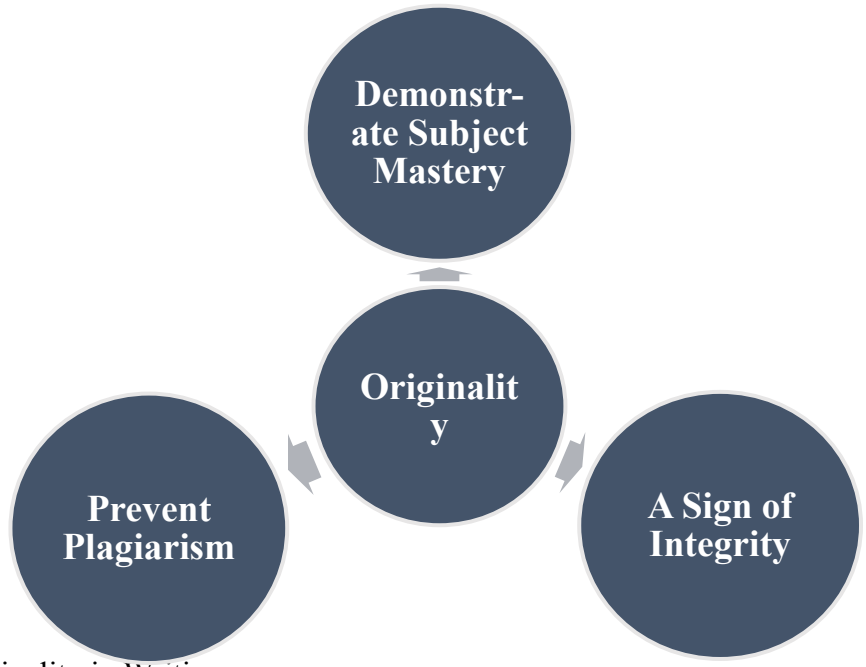


Figure 3

The Importance of Originality in Writing

Originality is important for higher education students because it allows them to engage deeply in the writing process. In other words, being original in writing means that students engage in a creative process where their personal voice emerges through thoughtful synthesis and critical reflection. Students are required not to skip any stage of the writing process in order to understand what has been done before and, if possible, add to it by reading, thinking, and developing their own style. According to *Plagiarism: Copyright vs: Plagiarism: Drawing the Line in Academic Writing (2025),* originality is important in academic writing for numerous reasons (**Figure 3**):

- **Demonstrate Subject Mastery:** using students' original and authentic ideas, voice, and information proves that they understand the subject matter and engaged deeply with the writing and learning process.
- **A Sign of Integrity:** originality is a sign of integrity that demonstrates students' commitment to the academic integrity through their writing.
- **Prevent from Plagiarism:** originality give students' writing credibility and prevent them plagiarism and academic dishonesty.

3. Artificial Intelligence

3.1 Definition of Artificial Intelligence

Artificial intelligence is a game changer in our technological world. It affects nearly all domains in our lives, including engineering, healthcare, education, and beyond. Defining AI can be challenging as result of its progressive development and interdisciplinary nature; however, it can be described as computational programs or machines which are trained to perform complex tasks that are typically associated with human cognition and intelligence.

While McCarthy, the father of AI and whom this term is coined to in 1956, define AI as "the science and engineering of making intelligent machines, especially intelligent computer programs. It is related to

the similar of using computers to understand human intelligence." In other words, McCarthy definition emphasizes that AI does not merely mimic human intelligence but rather develop machines that can understand human mind and can perform tasks requiring reasoning and complex processes.

Popenici et al., (2017) characterizes AI as "computing systems that are able to engage in human-like processes such as learning, adapting, synthesizing, self-correction and the use of data for complex processing tasks" (p. 2). This definition, unlike McCarthy, highlights AI's ability to perform tasks based on large data inputs. It shows the growing importance and evolvement of AI particularly in machine and deep learning era.

On the other hand, Russell and Norvig (2021) define AI as "the study of agents that receive percepts from the environment and perform actions." introducing the functional and behavioral dimension. Unlike McCarthy, this definition provide a more static and structural framing, they argue that AI is not just about smart machine but about the study of how these systems can act intelligently based on the environment "input". For example, a self-driving car perceives information about traffic lights and stops at the red light. Another example, Siri or Google assistant receives the user's voice command and respond.

While these definitions provide distinct perspectives from different angles namely, technical (McCarthy), cognitive (Popenici et al.,), and functional (Russell & Norvig) its shows how AI has grown over years from rule-based systems to adaptive tools performing complex tasks. The conceptualization of AI shapes how we interpret its educational value.

3.2 Brief Historical Timeline of Artificial Intelligence

By listing the Turing Award winners, we briefly summarize the timeline history of Artificial Intelligence in **Figure 4**. Starting with a historically important event that is considered as the birth of AI. (1956 Dartmouth conference)

It should be mentioned that although Russell and Norving (2021) provide a thorough chronology, this visual representation only emphasizes significant events in the history of artificial intelligence.

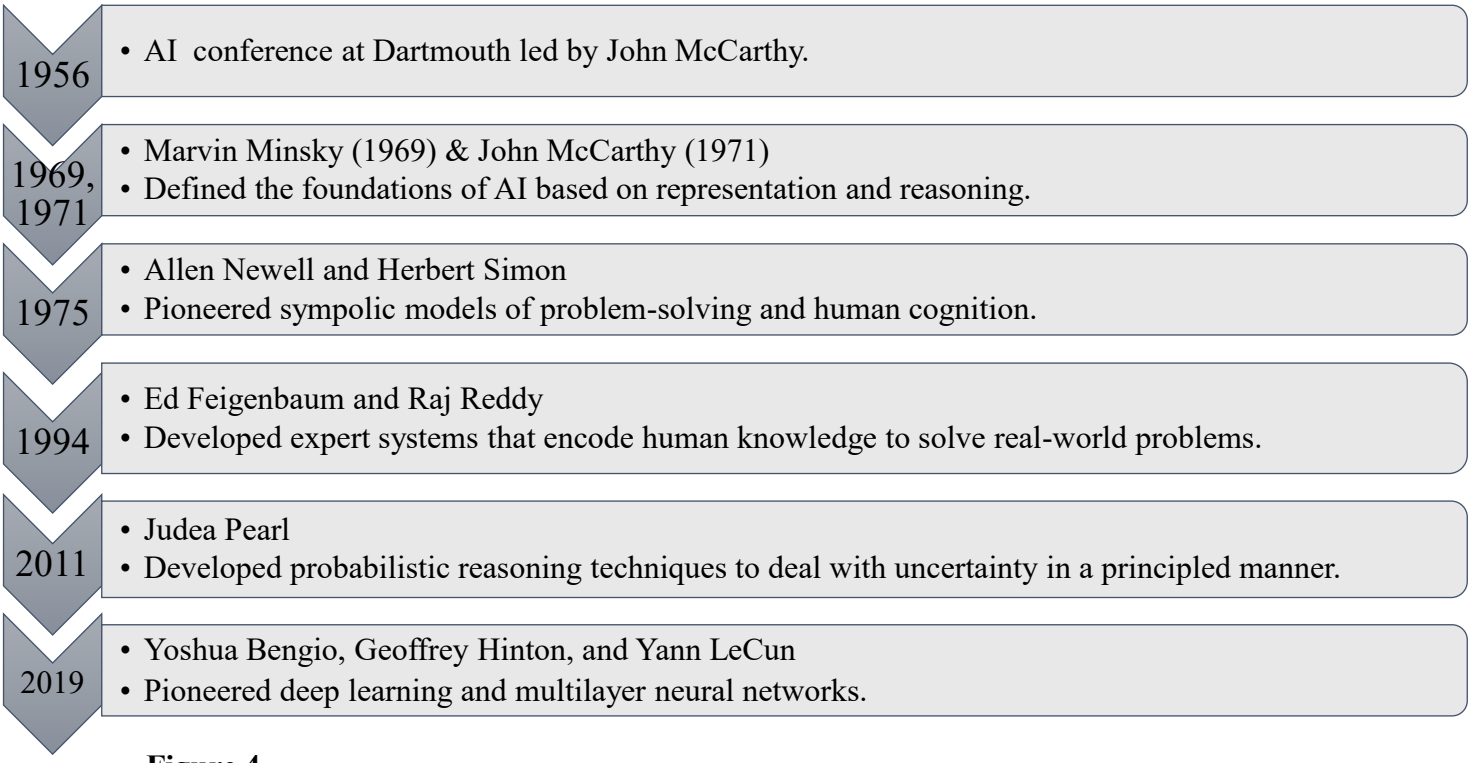


Figure 4

Artificial Intelligence Timeline

***Note**:* adopted from (Russell & Norving, 2021)

4. Artificial Intelligence related concepts

Artificial Intelligence is the umbrella term within computer science, it covers numerous subfields and technologies. Understanding these concepts is important to know how AI systems functions (see **Figure 5**).

4.1 General AI (AGI)

AGI, which also known as strong AI, is the term for an artificial intelligence system that, theoretically, possesses a human-like intelligence (or even smarter) and can perform any intellectual task that humans able to do. This type of AI seeks to mimic cognitive abilities such as, reasoning and thinking that are typically to humans. Sam Altman (2025), CEO of OpenAI, has stated “AGI is a weakly defined term, but generally speaking we mean it to be a system that can tackle increasingly complex problems, at human

level, in many fields". Currently, AGI does not yet exist but there's an ongoing research indicates that it remains a promising area for future development.

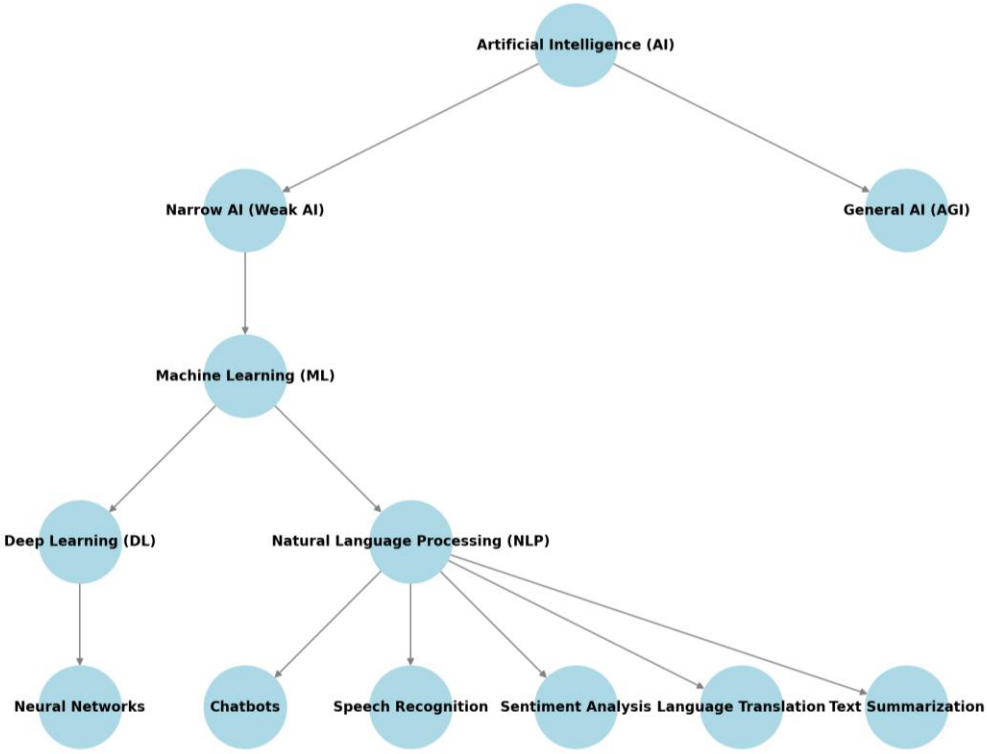


Figure 5

Artificial Intelligence Related Concepts

4.2 Narrow AI (Weak AI)

Narrow AI, as opposed to AGI, refers to AI systems that capable to perform specific tasks in specific domain. They do not possess the general ability or intelligence to transfer knowledge of multiple fields. It uses machine learning, natural language processing, and deep learning to categorize the data.

4.3 Machine Learning (ML)

Machine Learning (ML) is a branch of AI. It concentrates on training machines to recognize patterns from data and generate predictions without the need of explicit programming.

4.3.1 Types of ML

In Machine Learning there are three types:

- **Supervised Learning:** The model learns from labeled data (e.g. spam detection in emails).
- **Unsupervised Learning:** The algorithm is given data without explicit instructions (e.g. costumer segmentation, analyzing purchasing behavior to group costumers into categories).
- **Reinforcement Learning:** The model learn by trial and errors using rewards (e.g. AI playing chess).

4.4 Deep learning (DL)

A specialized field of ML that uses artificial neural networks to handle complex patterns in data such as self-driving cars, voice assistants (Alexa)

4.5 Natural Language Processing (NLP)

A specialized field of AI that enables machines to understand, interpret, and generate human language

4.5.1 NLP Applications

- **Sentiment analysis** (analyzing the mood of expressed emotions such as positive/negative or neutral e.g. reviews on peoples satisfaction with certain application in GooglePlay)
- **Language translation** (translating from one language to another e.g. Google Translate, Reverso)
- **Chatbots and virtual assistants** (to answer human queries e.g. ChatGPT)
- **Text summarization** (creating summaries from articles e.g. QuillBot)
- **Speech recognition** (convert spoken language to text e.g. Siri, Google voice assistant)

5. Artificial Intelligence in Education (AIEd)

Artificial Intelligence has been a subject of interest among researchers in the last couple years because it is widely spread in numerous fields, including healthcare, education, business, engineering…etc.

Building on this researchers have explored its application across different disciplines. For instance, Qadir (2021) discusses the promises and pitfalls of generative AI, precisely ChatGPT, in engineering education. Pointing up how ChatGPT can improve customized leaning through personalized feedback while also addressing some ethical concerns. While the technically content differs from EFL writing, this suggests that AI writing tools can tailor instructions based on learners individually needs. In addition, it highlights that AI writing tools can be tailored according to students individual needs which may benefit EFL learner's writing enhancement. However, the raised ethical concerns in engineering may appear as well in EFL setting.

In the same vein, Bhattamisra et al. (2023) investigated AI in healthcare field. They the growing role of AI writing tools in both healthcare and pharmaceuticals, emphasizing on disease diagnosis, drug discovery, and clinical trials. In addition, it discusses AI technologies like deep learning, Bayesian models, and wearable devices used in medical research. This demonstrates the practical use of AI writing tools cognitive and hard skills are crucial. Likewise, in EFL writing context, where students are supposed to engage deeply not only on cognitive skills such as critical thinking but also in practical skills in using grammar and expressing ideas. This suggests that AI benefits observed in these fields may also apply to EFL writing.

6. The role of AI writing tools in writing

Academic writing is regarded as one of the most complex language skills because it requires significant demands for both linguistic accuracy and various cognitive abilities. Furthermore, in EFL/ESL context, students find writing even more challenging because they are not only expected to learn how to generate ideas but also to translate thoughts, make decisions, and solve problems related to structure and argumentation while writing. The high pressure associated with writing assignments and well-structured research papers under time construction, particularly at the university level, has opened the room for

integrating new technologies such as, AI writing tools. Furthermore, AI writing tools are available not only as web-based platforms but also as mobile applications, making them easier and flexible to use. These tools assist students with grammar and spelling correction, paraphrasing, vocabulary development, idea generation, and personalized feedback. According to Lee (2018) (as cited in Achili & Zerrouki, 2024), AI in education can be utilized in four contexts: classroom teaching, homework, exercises or exams, and grading and customized lessons.

8. Brief Overview on AI Writing Tools Benefits

Technology plays a significant role in shaping teaching and learning process, and AI writing tools are no exception. In traditional way of teaching, teachers often struggle to provide feedback to all students because of the limited time and the large number of students in each class. Therefore, AI writing tools helps in overcoming this issue by offering instant and personalized feedback to students' queries. In this regard, Nazari et al. (2021) stated that one of the most significant benefits of integrating AI in education is the immediate feedback provided to students regarding their learning progress (p. 2). Students become more motivated, involved, and active learners because of this instant feedback. However, this may encourage external dependency rather than self-evaluate or critically reflect on writing. In this case these tools play the "corrector" role, not a facilitator for independent development.

Additionally, not all students can afford the high cost of advanced educational resources or private tutoring in many countries. AI writing tools, on the other hand, can serve as a free or low-cost learning opportunities and are accessible 24/7. Yet, this availability raises concerns about equity of quality as not AI writing tools are academically reliable and valuable. Consequently, it may lead to over usage of these tools, particularly for learners whom not trained in how to use them critically.

Another benefit is overcoming writer's block, which is defined by (Duchene, 2008) as “a temporary inability to begin or continue a writing project due to fear, anxiety or lack of inspiration-strikes professional and non-professional writers alike”. In other word, writers block, or paralysis, is a common

challenge where writers struggle to produce new content because of the lack of inspiration, fear of failure, and anxiety. And it can occur in different writing stages: **At the begging**: when writers feel the pressure of what to write and how to start due to perfectionism or lack of clear direction. **In the middle**: writers often get stuck in the middle of the writing due to lack of inspiration and struggle to connect ideas. AI writing tools can assist these students and writers in general (to create not fully generate) by reducing the pressure in numerous ways such as, brainstorming ideas or suggesting sentences completion. Despite this psychological relief that AI writing tools offer, it may cost intellectual decrease by skipping the discomfort of brainstorming and drafting.

7. Practical Examples of AI writing tools in writing

To better understand how AI writing tools are used by EFL students in writing, the following are five examples of AI writing tools that are frequently used in writing. According to Lukan (2025):

❖ ChatGPT

Chat Generative Pre-trained Transformer, as of October 2024, has recorded 200 million users, ranking as one of the most AI writing tools used worldwide. ChatGPT was developed by OpenAI and is programmed to generate human-like text from user's inputs. ChatGPT is utilized to assist users particularly students in different writing tasks, for instance, essay writing, brainstorming ideas, summarizing articles, and paraphrasing. Its capacity to deliver immediate feedback and tailored responses based on prior interactions has made it widely used and popular among students to enhance their writing skills. As of March 2025, a variety of features have been implemented, including a voice interaction(enables users to engage in spoken conversations for both input and output) and images and documents analysis (allows uploading images and documents to present visual information for analysis or discussion). However, users must critically assess its output to determine accuracy and originality.

- **DeepSeek**

The newly AI writing assistant developed by Chinese startup in January 2025 as a competitor to ChatGPT. It is an open-source large language model (LLM) similar to GPT. Rapidly and surprisingly gaining popularity due to its free usage (it offers low-cost compared to ChatGPT premium features). In addition to speed and accuracy, it assist in generating codes that support various programming languages. Despite these benefits DeepSeek show some limitations such as, privacy, ethical, and bias concerns.

- **Grammarly**

One of the most useful AI writing tools in writing. That offers spelling checks, tone adjustments, and full sentence rewrite based on the tone needed whether formal or informal. It can be used directly on different platforms such as, Microsoft word and Gmail providing real-time suggestions and proofreading while typing in these platforms. There is a free version (that covers basic grammar and spelling checks) and premium version (that goes deeper into sentence structure and word choice). Bailin (1987, as cited in Achili & Zerrouki, 2024) argued that AI technologies have been developed to assess students' grammar and offer detailed feedback**.** Although, these advantages that Grammarly offer in EFL writing, it cannot assume the linguistic accuracy and pragmatic appropriateness as it gives content-based solutions. In addition, it risks redundancy due to the use of same patterns for different inputs.

- **Perplexity**

An AI-powered search engine that was created in 2022. The term "perplexity" comes from the NLP metric that called "perplexity" (Van Otten, 2024), which measures how well language model predicts a sample. It provide answers to users inquiries with sources (it helps more in doing research). Unlike traditional search engines, it focuses on direct answers rather than listing links improving the search experience. Perplexity, help students to gather relevant information by summarizing complex topics, academic papers, and sources in short time instead of reading multiple websites.

❖ **Wordtune**

It is an AI-powered writing assistant that presents a variety of features that supports a range of writing tasks. As Grammarly, Wordtune can be integrated in Gmail, Facebook, and Google Docs makes it suitable for both casual writing tasks such as, social media posts and more professional contexts, including academic papers. "Wordtune learns patterns from a large dataset to suggest options for rewording the sentences without referring and using the contents of other online sources "(Rezaee & Allahyari, 2023, p 63). Offering useful features to students including, paraphrasing, grammar and spelling corrections, tone adjustment, text generation, and translating. However, they mention some limitations for this platform such as, it lacks offline service and inability to rewrite complicated texts.

8. Limitations of using AI writing tools for writing

Although the numerous advantages that AI writing tools offer in the educational context are significant, concerns regarding their limitations have been raised. The integration of these tools in education require deep thinking on how to manage the challenges associated with it. Lynch (2018) stated

If AIEd is going to benefit education, it will require strengthening the connection between AI developers and experts in the learning sciences. Otherwise, AIEd will simply 'discover' new ways to teach poorly and perpetuate erroneous ideas about teaching and learning

Lynch (2018)

Teacher's perspectives on integrating AI into education are essential because they provide a comprehensive understanding for assessing its effectiveness and potential drawbacks. Additionally, a number of studies have highlighted this issue on the future of teaching and learning, revealing that these risks may lead to significant concerns about cognitive and language skill development (Lynch, 2018; Bouchaghchough & Himed, 2024).

Six limitations associated with using AI writing tools in academic writing according to Hazimah et al. (2024):

8.1 Lack of Academic Rigor

One of the limitations of AI in academic writing is to meet precision and rigor standards because of its limited critical thinking abilities and lack of expertise in specific scientific fields. The content produced often lacks depth analysis and credibility, particularly in generating sources.

8.2 Insufficient Knowledge Base

Although AI writing tools can facilitate the writing process, it will not be able to replace the human logic and interpretation, particularly an academic. AI requires a specific base of knowledge to draw information from, which is typically provided by textbooks. Accordingly, AI cannot be persuasive or effective in producing scholarly articles, as it lacks the depth and understanding to address complex issues across different academic fields. AI-assisted writing depends on pre-existing data and algorithms, which often limits both depth and originality.

8.3 Inability to Synthesize Complex Ideas

Complex ideas, theories, and research findings can sometimes be challenging for AI writing tools to incorporate. Additionally, users frequently find themselves investing double time and effort in correcting errors and presenting the information in a well-reasoned manner.

Unlike human, AI writing tools can generate content but they struggle with complex tasks that require connecting disparate concepts, contextually understand, and logically present them. As AI writing tools can only predict text based on patterns in its training data.

8.4 Lack of Human Cognitive Abilities

Unlike human, AI tools can generate content but they struggle with complex tasks that require connecting disparate concepts, contextually understand, and logically present them. As AI tools can only predict text based on patterns in its training data.

8.5 Limited Adaptability

AI writing tools are unable to adapt dynamically new ideas or evolving academic debates. In other words, because AI writing tools rely on patterns from pre- existing data, they are unable to incorporate new, unconventional, or evolving ideas as they lack the flexibility to think outside predefined frameworks.

8.6 Questionable Originality

The final drawback of AI writing tools as noted by Wan Hazimah et al. (2024), since AI writing tools rely on pre-existing data, they produce repetitive and unoriginal output. Therefore, when students use these tools frequently, their writing may become impersonal and generic. Furthermore, plagiarism may result from AI writing tools' lack of the genuine creativity and autonomous thought that human minds possess.

9. Over-reliance on AI writing tools

As Postman stated, “Technology giveth and technology taketh away,” emphasizing the idea that technology comes with a price. In other words, whenever there is a positive aspect, there must also be a negative one. One of the most important issues regarding the use of AI writing tools in education is over-reliance on them. Collin Dictionary define over-reliance as someone or something that depends on them without questioning their validity. In educational context, students may accept AI writing tools generated content as a true fact without critically evaluating its accuracy. For instance, using AI writing tools in citations and references without verification.

AI writing tools do not provide exact sources and may fabricate citations. This issue is concerning particularly if students seek new information they are unfamiliar with, as they may not recognize inaccuracies even if it sounds credible. This dependence usually happened because they are uncertain about to which extent they should trust AI suggestions. When students use AI writing tools to complete writing tasks, such as writing assignments, they perform and achieve better results than when they rely on their own abilities, which may make them feel that they cannot produce a high-quality work without its assistance particularly EFL/ESL students with lower-level skills. Using AI writing tools reduces reliance on instructors and teachers on the, other hand, it make them reliant on those tools.

10. The Impact of Over-Reliance on AI writing tools on Soft Skills

Many studies have recently highlighted that over-reliance on AI may present serious issues and have a detrimental effect on students' cognitive development, including critical thinking, decision-making, and originality.

Students’ risks diminishing their ability to think critically and independently because of the excessive use of AI to complete their assignments without deeply engaging in the cognitive processes essential for learning. In addition, when AI writing tools are used by students extensively, they may accept the generated content, reinforcing the habit of copy-paste the information without evaluating its accuracy or understanding the content, neglecting the importance of developing their analytical skills. Consequently, students may struggle to learn and comprehend the subject matter and apply it to various contexts, eventually, losing their ability to engage in deep learning and adopting only a surface-level understanding.

One of the impacts of AI writing tools on critical thinking is when “AI systems create “echo chambers,” limiting the diversity of perspectives that one is exposed to” (Darwin et al., 2024). The echo chambers refers to the situation where AI algorithm reinforce existing preferences and repeatedly expose similar content to users. This happens because the AI recommendation systems prioritize information that

align with user's previous interactions. For example, if AI writing tool such as ChatGPT suggest to the user single type of writing style based on previous inputs, it may create an echo chamber where students will rely on the same pattern, reducing both critical thinking and creativity. In writing, AI writing tools rely on popular content reflecting a dominant perspectives, which reinforces students to opt one-sided views rather than being exposed to diverse arguments. Moreover, it discourages students from questioning or engaging in reasoning. Over time, this practice may narrow students' intellectual flexibility and reduce their ability to engage with contradictory evidence, leading to a writing that lacks depth and independent insight.

Another impact is that some studies show that over dependence on AI writing tools may lead to cognitive offloading which may limit one's critical thinking abilities (Gerlich, 2025). Cognitive offloading occurs when students rely on external tools such as AI Chatbots to perform cognitive tasks that necessitate human thinking. This may lessens mental efforts required for difficult tasks such as critical thinking and decision-making in writing. As a result, it may cause a reduction in cognitive engagement and skills development. Over-reliance on AI Chatbots possibly affect decision making, critical and analytical thinking abilities, encouraging dependency and diminishing personal judgment skills (Zhai et al., 2024). Thus, these tools' instant responses reduce the need for independent engagement in the cognitive skills which in the long-term may hinder the development of critical thinking and decision making abilities.

Despite the effortless and timeless assignments that students complete using such tools by few clicks, their overall academic experience will become somewhat ineffective. Consequently, it may reduce their ability to think and make writing related-decisions due to the ready-made choices and generated content. In the long-term, these tools may replace students' role in the decision-making process. According to Sabharwal et al., (2023) the over-reliance on AI tools may gradually diminish students' decision-making abilities. AI writing tools ability to provide well-organized and automated without the need to practice

cognitive skills (i.e. thinking critically), as mentioned earlier, makes students increasingly passive when dealing with their writing products.

Furthermore, while AI writing tools recently become more capable of producing human-like content, it raises challenges and places additional pressure on teachers. For instance, Students are using numerous tools to enhance their writings with AI, employing paraphrasing and humanizing applications to make their work sound more authentic, making it increasingly difficult for teachers to assess originality. Therefore, teachers are required to be able to differentiate between students' original work and AI writing tools generated content, as well as develop fair evaluation methods for both. AI detectors can be used to solve this issue; however, even these platforms are not 100% reliable "Caution: Our AI Detector is advanced, but no detectors are 100% reliable, no matter what their accuracy scores claim. Never use AI detection alone to make decisions that could impact a person's career or academic standing" (QuillBot, 2025).

Over-relying on these tools diminish students ability to engage independently in writing. As well as motivates them to seek external help rather than producing their own insights, thoughts, and personal voice. Students over time prefer to quickly correct their errors and mistakes over understanding, engaging, and learning from them. This oversimplification of these tasks risks students grasping of the deep information needed to write and communicate their ideas independently.

11. Ethical concerns

The functionality of AI and its ability to provide reliable and accurate information have been questioned by numerous studies conducted in recent years. While teachers acknowledge the potential insightful benefits of AI in various aspects of life, including education, they remain concerned about significant issues regarding ethics and privacy (Uygun, 2024).

Demis Hassabis, CEO of Google DeepMind, has stated, “First solve AI, then use AI to solve everything else” (as cited in Russell & Norvig, p. 49). AI writing tools are used to solve many problem students may encounter, as highlighted in the benefits. However, these solutions can also give rise to new issues, raising ethical concerns such as hallucination and AI bias.

11.1 Hallucination

AI writing tools productions may sounds perfect and relevant however they can be inaccurate misleading or wrong. AI hallucination occurs when AI model generate incorrect, misleading, or completely fabricated information Google Cloud. (n.d.). It happened when AI make false assumptions and it have two forms:

- **False positive:** when AI incorrectly identifies something as true. For instance, AI detector flags human-written text as AI-generated wrongly.
- **False negative:** when AI cannot detect something as a threat while it is. For instance, AI-generated text classified as human-written.

11.2 AI bias

AI bias, which also known as algorithm bias and machine learning bias, occurs when algorithms reflect human biases resulting to inaccurate input. AI trained on data that may not be diverse, causing it to prioritize certain data over others (Chapman University). For example, in AI grading system that is trained on native speaker’s essays may give a lower scores for non-native speakers, prioritizing language fluency over content quality.

Conclusion

The adoption of AI writing tools in the academic context have transformed the teaching and learning process. While these tools provide significant advantages such as, enhancing productivity. Many studies have raised concerns about the negative impact of these tools on developing soft skills, particularly critical thinking decision-making, and originality. An increasing risk associated with the popularity of these tools that students may become overly reliant on them, consequently weakening their ability to engage in the cognitive process needed for effective academic and professional experience.

However, in the Algerian context, studies often focus on its benefits and pay less attention to their unintended consequences and limitations. Therefore, the question of over-reliance on AI writing tools remain underexplored, particularly in relation to students' perceptions of how AI affects their soft skills. The influence of these tools on critical thinking, decision-making, and originality is crucial however, understanding how students themselves experience these changes is needed.

Chapter II : Research Methodology

Introduction

This chapter outlines the research methodology adopted in this study. It describes the research approach and design, as well as the tools used for data collection and analysis. The chapter justifies the alignment between research questions and methodological choices.

1. Research Methodology

In academic research, the term "methodology" refers to the blueprint or roadmap for the research, in which the researcher seeks to gather answers for unsolved problems through systematic and strategic process. Methodology provide the rationale behind why certain techniques are used to collect and analyze data, and how those techniques are suitable for the research questions and objectives under investigation. It emphasizes the crucial role that facts and data plays in the research process, focusing on the idea that research is more than data collection or a casual inquiry. Instead, it requires a well-structured and evidence-based approach. In addition, the primary goal of a research is to provide more reliable and adequate solutions to the intended problems in various forms; for example, historical, experimental, or observational. (Crotty, 1998; W.S. Monroe, as cited in Singh, 2006).

Additionally, it is worth to mention the difference between methodology and method, as they are often used interchangeably. To demonstrate the philosophical foundations of this study and the tools used to collect and analyze data, ensuring the alignment of the chosen methods with research paradigm and design.

Research methods are particular procedures and strategies used by researchers to gather, analyze, and interpret the data relevant to their studies (Creswell & Creswell, 2018). It focuses on the practical process and instruments used to apply the design, for example, interviews, surveys, or observations. A well selected research method guarantees findings that are valid, reliable, and applicable to the phenomenon under investigation answering the “what” in research. In contrast, research methodology is the roadmap

and broader approach that guide the overall research process answering the “how” and “why” or rationale behind applying these methods.

2. Research Paradigm

A research paradigm consists of scientists' shared beliefs and concepts on how challenges should be perceived and addressed. It defines the researcher's perspective on investigation and acts as the conceptual and philosophical framework that directs research. This includes assumptions about nature reality (ontology), nature of knowledge (epistemology), and the methods employed to acquire knowledge (methodology). The identification and selection of an appropriate research paradigm are crucial, as it forms the foundation for the research work and influences the choice of methodologies, tools, and designs. Research paradigms reflect abstract philosophical stances that are closely linked to researchers' concepts and approaches to the world. Each paradigm provides a distinct framework for interpreting phenomena and guiding investigative activities (Guba & Lincoln, 1994). Numerous paradigms are used in educational and social research. Each paradigm represents different assumptions and implications for the research process.

2.1 Pragmatism Paradigm

The interpretivism, constructivism, and positivism were not adopted as they focus on a single worldview or methodological approach. In addition, the present study adopted pragmatism paradigm because it is more suitable for the study’s aim that is to explore students’ qualitative perception and quantitative patterns.

The pragmatism paradigm is best suited in mixed method research because of its flexibility. It allows the combination of qualitative and quantitative approaches to understand and solve the research problem. It is used because it focuses on the research problem itself and uses all the approaches suited to solve this

problem, rather than addressing and focusing specific method or philosophical view. Given the aim of this research*: to explore EFL students' perceptions of the impact of over-reliance on AI writing tools on their development of key soft skills (critical thinking, decision-making, and originality),* this paradigm provide a practical and flexible lens to examine multiple types of data.

3. Research Approach

"Research approaches are plans and the procedures for research that span the steps from broad assumptions to detailed methods of data collection، analysis, and interpretation." (Creswell, 2014, p.31). It guides how the research is conducted in terms of data collection, analysis, and interpretation. There are three main categories of research approaches: qualitative, quantitative, and mixed-methods. The research approach used influences significantly the research design and research methods (data collection and data analysis).

3.1 Mixed-Method Research Approach

The mixed-method approach was chosen because it "it combine the qualitative and quantitative approaches within different phases of the research process" in a single study (Tashakkori & Teddlie, 1998, p 18). This approach involve collecting both numerical data (closed-ended questions) and qualitative data (open-ended questions), then interpreting the findings after analyzing them separately. It is often associated with pragmatic paradigm, which emphasizes the real-world problem-solving and practicality. In addition, it allows flexibility and triangulation using multiple forms of data and perspectives. Seeking to explore both the measurable extent and the subjective perceptions of over-reliance on AI writing tools and their impact on soft skills. As a purely qualitative or quantitative would not have captured this complexity.

4. Research Designs

Research design is the strategy that the researchers selects to integrate the different components of the study in a coherent and rationale way. It is crucial because it guides the whole research process, from defining the research questions, hypothesis, and objectives to determining the data collection and analysis tools that will be used. It is influenced by the philosophical worldviews (paradigms) and connected with the specific methods used in data collection and analysis.

The case study design is employed as it provide in-depth investigation of a particular (single) group: first-year Master's students in Sciences of Language branch. This design is widely used in Sciences of Language and educational research because they are valuable and promote a better understanding of specific individuals, groups, events, or programs. In addition, it is suitable to gain a contextualized understanding of students' experiences and perceptions of the recent phenomenon that is AI writing tools in education context. The case study design allow the researcher to explore this issue in real-life educational setting.

Mixed-methods design is a combination of both qualitative and quantitative approach in a single study to provide a more flexible and comprehensive understanding of the research problem. It involves collecting, analyzing, and integrating both types of data to strengthen the research because researchers believe that combining both approaches is more superior and can limit the weaknesses and biases which may be resulted from using single approach. (Dawadi et at., 2021). This type of designs is suitable for complex research questions when neither quantitative nor qualitative data alone is sufficient to investigate the full understanding of the addressed phenomenon. However, using triangulation (multiple methods or tools) can assist in validating the findings. Quantitative findings can be explained or deepened by qualitative insights, or vice versa.

The researcher adopted the convergent parallel design because both quantitative (closed-ended questions) and qualitative data (open-ended questions) were collected simultaneously in an online questionnaire, analyzed separately, and then interpreted after merging the results. As Creswell and Plano

Clark stated "the researcher implemented the quantitative and qualitative strands at the same time, both strands had equal emphasis, and the results of the separate strands." (2018, p.63). However, one of the core advantages of this design is that collecting qualitative and quantitative data concurrently does not necessarily imply their equal weight. Placing greater emphasis on qualitative over quantitative and vice versa is accepted and show flexibility in convergent design. Dealing with complex phenomenon such as AI impact on students' soft skills can be partially captured with only numerical data as the students' insights provide in-depth and explanation from their personal experiences.

5. The Research Questions

The present research questions were formulated from the increasing integration of artificial intelligence writing tools into academic context and the corresponding concerns about students' growing dependence on these technologies. The first question *"How do students perceive the impact of AI writing tools on their critical thinking, decision-making and originality in academic writing?"* seeks to explore the students' subjective insights on how these crucial soft skills may be influenced by AI writing tools. Students' cognitive abilities are not only important in their academic achievements but also personal and professional growth that may be at risk when relying excessively on these tools.

The second research question *"What are the perceived impacts of overreliance on AI writing tools on students' soft skills in academic writing?"* places more emphasis on the over-reliance on such tools. While AI writing tools may improve students learning and productivity, the abuse and frequent use can hinder their soft skills development. This question highlights the need to only to understand the general perceptions within AI usage but also the risks behind the over-reliance on these tool in academic writing tasks.

These research questions were raised to respond the current research gap in the Algerian EFL context, where little attention is giving to students' perceptions of AI's role in shaping their educational journey as well as whether they use/abuse these tools in academic writing processes.

6. Population and Sampling

The target population of this study consists of first-year Master's Students enrolled in Sciences of Language branch at Biskra Mohamed Kheider University. This selection of this population was because: these students have been studying writing course for the past three years and are likely to have three years of experience with AI writing tools (approximately since its emergence in Algerian Universities)

The sampling technique used in this research is voluntary sampling, which is a type of non-probability sampling. However, there is a possibility of sampling bias due to respondents' possessive attitudes such as strong interest or high motivation in AI writing tools. The sample was composed of students who voluntarily chose to participate by responding to an online questionnaire. A total number of 28 students were participated voluntarily in this study. Which is considered sufficient given the exploratory nature on the study in a mixed-methods case study design. The case study sample sizes are typically small to collect rich data which are not aimed at statistical generalizability (Yin, 2018 as cited by Schoch, 2020), aligning the study's aim for depth over breadth. The nature and the purpose of the study were informed to the students in the questionnaire as well as their confidentiality and data protection rights (anonymity and optional participation).

7. Data Collection Tools

The researcher employed an online questionnaire consisting of both closed-ended and open-ended questions and created via Google Forms. The questionnaire was piloted to five students to ensure clarity and reliability and some modification were done based on their feedback. This mixed-format was used to

obtain quantifiable data and in-depth insights. The online questionnaire was shared in first-year Master's students' Facebook group with the collaboration of two delegates in this group. In addition, it was designed to understand the students' perceptions of AI writing tools and their influence on specific soft skills (critical thinking, decision-making, and originality). The questionnaire was organized into seven main sections: *(1) Background Information, (2) Familiarity with AI writing tools, (3) Writing challenges and AI usage (4), Soft Skills and AI Usage, (5) Impact on soft skills.*

8. Data Analysis

Following the convergent parallel mixed methods design, the collected data were analyzed. The rationale behind this design is to offer a better understanding of students' experiences through comparison and connection of results from both types of data at the same phase

The quantitative data from the closed-ended questions such as, Likert-scale, multiple choice were analyzed using SPSS (Statistical Package for the Social Sciences). The analysis was done using **descriptive statistics,** such as frequencies and percentages to summarize the familiarity level and students' academic writing abilities, **Cross-tabulations** to explore relationships between variables, **Visual representations,** such as pie charts.

The qualitative data from the open-ended questions were analyzed through thematic analysis "a method for identifying, analyzing, and reporting patterns (themes) within data" (Braun & Clarke, 2006, p. 7). This technique was used as it allows identifying, analyzing, and interpreting students' perceptions in a textual data. This analysis followed the six-phase framework as proposed by Braun and Clarke (2006): (1) Familiarization with the data, (2) generating initial codes, (3) searching for themes, (4) reviewing themes, (5) defining and naming themes, (6) writing the report.

Conclusion

This chapter provides a detailed research methodology used in this study. To explore the perceptions of students while using AI writing tools in academic setting and their impact on soft skills. A pragmatic paradigm within convergent parallel mixed-methods design was adopted to collect qualitative and quantitative data via online questionnaire addressed to 28 voluntarily participants of first-year Master's students in Sciences of Language branch. This approach was used to ensure a comprehensive understanding of the research problem, while the next chapter will present and interpret this data.

Chapter III : Interpretation and Discussion of Results

Introduction

This chapter presents the findings of the study, based on the collected data through a mixed-format questionnaire. The researcher organized the results according to the research problem questions guiding this study. The quantitative and qualitative data are presented separately. Quantitative results reported at first, including descriptive statistics and visual representations using SPSS. These statistics are followed by qualitative findings derived from the open-ended questions in the questionnaire, highlighting common themes with some quotations of students' responses. Then the findings are interpreted and discussed in relation with research objectives and relevant literature. The aim of this chapter is to provide a comprehensive understanding of the perceived impact of overreliance on AI writing tools on students' soft skills in academic writing.

1. Description of Students Questionnaire

Twenty-eight students in the Sciences of Language program were given a semi-structured questionnaire. Participants were selected using purposive sampling to ensure that they meet the criteria of being EFL students who had experience in academic writing and using AI writing tools. The questionnaire included (16) closed-ended and open-ended questions, aiming to gather quantitative and qualitative data regarding the impact of AI writing tools on students' soft skills. The closed-ended questions involve selecting the most appropriate answer from a list of options, multiple choice, yes/no dichotomies, and Likert scales. It examined students' perceptions and opinions toward AI writing tools and their effects on learning experiences, particularly on the soft skills that are crucial for academic writing. The questionnaire was organized through five main sections. The first section was designed to gather background information of the students and it composed one question about their writing abilities (gender question was omitted, as it was not considered as relevant variable for this study purposes). The second section focuses on students' familiarity with AI writing tools. It involves four questions designed to assess the

extent of students' interactions with AI writing tools, the duration of their usage, their frequency of use, and their preferred AI writing tools. The third section link the writing challenges to students AI usage. It consist of four questions, align with two follow-up open-ended questions, aimed at shedding light on academic writing challenges and whether these challenges lead students to use AI writing tools. In addition, the fourth section is about soft skills and AI writing tools usage. It includes five questions, three of them open-ended questions. It seeks to know how students use AI writing tools in relation to each of the key soft skills under investigation (critical thinking, decision-making, and originality). The last section is about the impact of AI writing tools on students' soft skills mainly when over-relaying. It involves two questions, one open-ended and one Likert scale item with three statements.

The researcher collected and analyzed the questionnaire data according to the convergent parallel mixed methods design. Presenting the quantitative results first, aligning them to the two-research questions. Then they were analyzed using descriptive statistics (frequencies, percentages, and graphs) using SPSS software, followed by the qualitative findings through thematic analysis to identify recurring insights.

Prior distribution, the questionnaire was reviewed by two instructors to ensure content validity and relevane to the research objectives. Then the questionnaire was piloted to five students (who meet the research criteria). Their feedback led to minor modifications in wording to enhance comprehensibility. The final version of the questionnaire based on instructors input and pilot feedback was then administred to participants.

The following sections present the detailed findings.

2. Quantitative Results

Section One: Background Information

The first section of the questionnaire is about students' background information. It involves a general information to understand participants' self-perception of their academic writing abilities, they were asked to rate their current level skill.

Question 1: How would you rate your current academic writing ability?

As shown in **Figure 6** and **Table 2**, the majority of the students rated their academic writing skill as "Average" 42.86%, while 35.7% perceived it as "Good". A lower percentage of 21.4% rated their academic writing skills as "Poor". This self-assessment is a baseline in understanding students' level in writing, which is important for later Analysis of their perception of AI writing tools role in their academic work.

Table 2

Students' Self-Rated Writing Ability

		Frequency	Percent	Valid Percent	Cumulative Percent
	Poor	6	21.4	21.4	21.4
	Average	12	42.9	42.9	64.3
	Good	10	35.7	35.7	100.0
	Total	28	100.0	100.0	

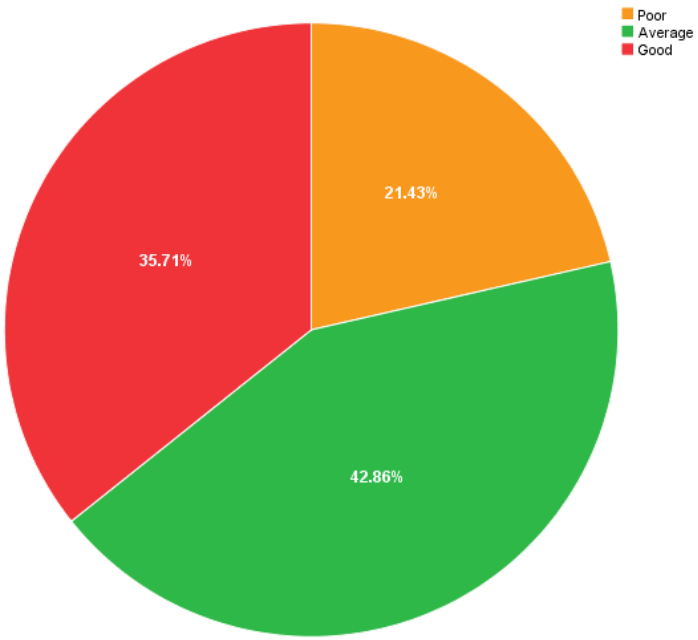


Figure 6

Students' Self-perception of Writing Ability

⇨ The majority of the students reported their academic writing ability as "Average" or "Good" (78.6% combined) suggests that while they are relatively confident there is still a room for improvement. However, over one-fifth (21.4%) of the respondents consider themselves as poor writers highlights a lack of confidence in their abilities and potential difficulties, which may push students towards relying more on AI writing tools in completing their academic writing tasks. Aligning the existence concerns about EFL learner's difficulties with academic writing.

2.1 Results Related to Research Question One

The first phase is related to the findings of the quantitative questions associated with to the first research problem

➔ *"How do students perceive the impact of AI writing tools on their critical thinking, decision-making and originality in academic writing?"*

Section Two: Familiarity with AI Writing Tools

The second section of the questionnaire highlighted students' familiarity with AI writing tools. It explore how familiar they are with these tools, for how long they have been using these tools, how frequently they used them, and which specific tool they preferred. It aims to provide a clearer understanding of the students' experience with AI writing tools in their academic writing practices.

Question 2: How familiar are you with AI writing tools?

Respondents were asked about their familiarity with AI writing tools. As shown in Table 3 and **Figure 7**, 42.9% reported being very familiar with such tools, 25% indicated they are moderately familiar, 21.4% % were extremely familiar, a 7.1% students were slightly familiar, while a minority of 3.6% said they are not familiar at all.

This familiarity rate highlights students' previous exposure to AI in academic contexts.

Table 3

Students' familiarity with AI Writing tools

		Frequency	Percent	Valid Percent	Cumulative Percent
	Not familiar at all	1	3.6	3.6	3.6
	Slightly familiar	2	7.1	7.1	10.7
	Moderately at all	7	25.0	25.0	35.7
	Very familiar	12	42.9	42.9	78.6
	Extremely familiar	6	21.4	21.4	100.0
	Total	28	100.0	100.0	

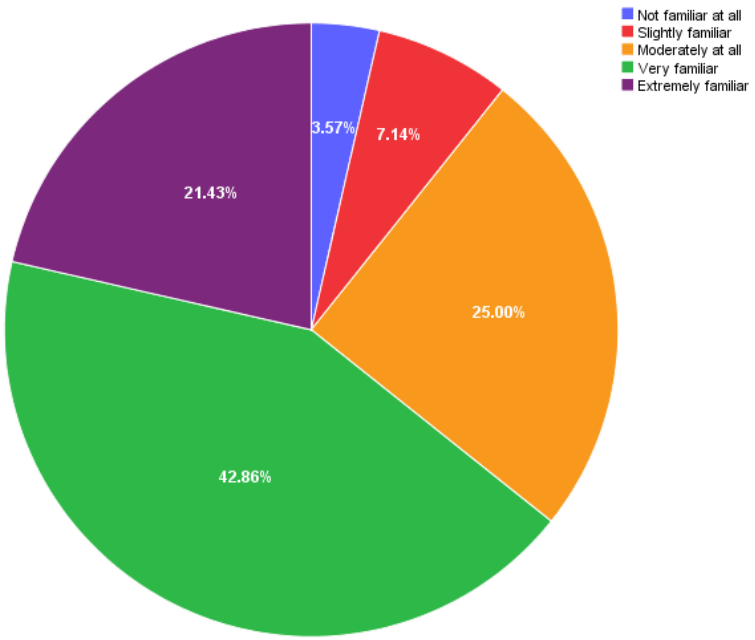


Figure 7

Students' Familiarity with AI Writing Tools

⇨ The results suggest that the majority of students reported a high level of familiarity with AI writing tools. This familiarity suggests that AI writing tools have gained a significant exposure among respondents, making them appropriate participants for this investigation about their perceptions of AI's impact on academic writing and soft skills. The small percentage of students who are unfamiliar with these tools might be due to their limited exposure or lack of interest. This context strengthens the validity of the study's focus on overreliance, because users who are familiar with AI tool base their perceptions of its influence on a personal experience, rather than theoretical assumptions.

Question 3: For how long have you been using AI writing tools?

The results displayed in

Table 4 and **Figure 8** that the majority of the respondents are experienced with these tools. (35.7%) reporetd using AI writing tools over a year, while 28.6% indicated having more than two years

				Cumulative
	Frequency	Percent	Valid Percent	Percent
•3–6 months	6	21.4	21.4	21.4
•6–12 months	4	14.3	14.3	35.7
•Over a year	10	35.7	35.7	71.4
•More than two years	8	28.6	28.6	100.0
Total	28	100.0	100.0	

of experience. In addition, 21.4% of the respondents have been using AI writing tools for a period ranging from three to Six months, whereas only 14.3% reported usage between Six to Twelve months. These results indicate that most participants have considerable experience in using AI writing tools, with over 60% having utilized such technology for more than one year.

				Cumulative
	Frequency	Percent	Valid Percent	Percent
•3–6 months	6	21.4	21.4	21.4
•6–12 months	4	14.3	14.3	35.7
•Over a year	10	35.7	35.7	71.4
•More than two years	8	28.6	28.6	100.0
Total	28	100.0	100.0	

Table 4

Duration of students' AI writing Tools Usage

- According to the data, significant group of respondents have a notable experience with AI writing tools, with 64.3% reporting usage exceeding more than one year. This extended usage may imply a deeper integration of AI into their academic writing processes, influencing not only their writing habits but also their soft skills (critical thinking, decision-making, and originality) over time. However, respondents who have used AI writing tools for less than a year might still be in the early stages of integrating them into their writing processes.
- Understanding the disparate effects of AI requires an awareness of this variation in experience duration. While experienced users may have developed dependencies or well-developed strategies for AI use, newer users might either rely less on AI or use it with greater critical awareness. These results provide important context for interpreting later findings on soft skills development and

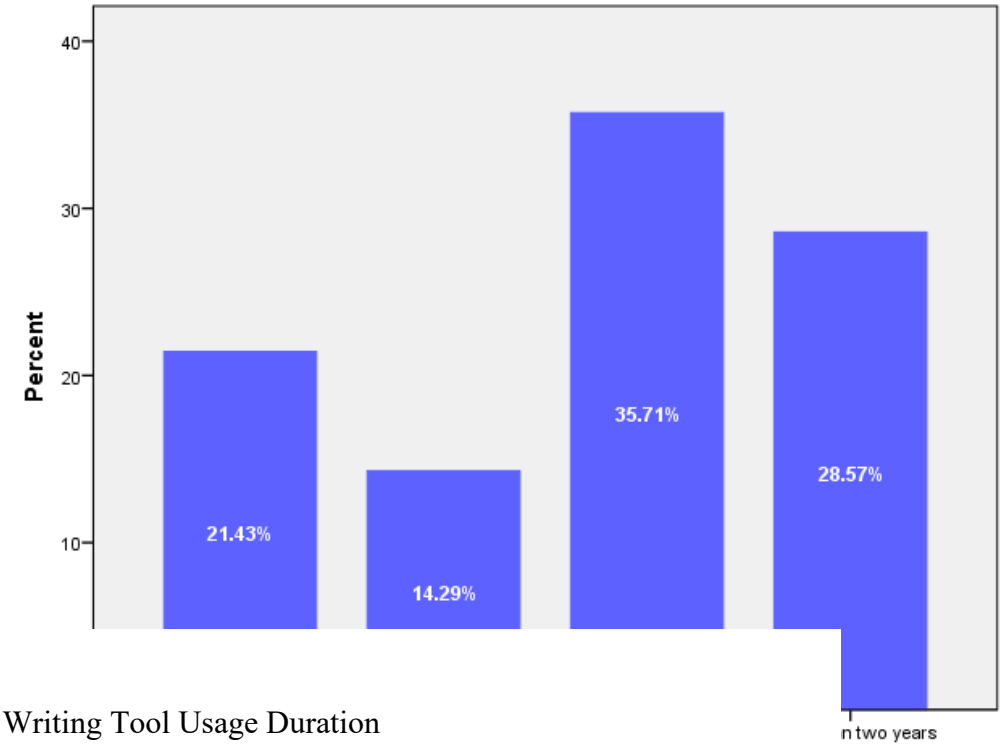


Figure 8

Students' AI Writing Tool Usage Duration

overreliance, suggesting that length of AI exposure could be a leading factor in shaping students' perceptions.

Question 4: How often do you use AI writing tools?

This question aims to know to what extent students interact with AI writing tools when completing academic writing tasks. **Table 5** and **Figure 9** indicate that nearly half of the respondents reported using AI writing tools often for most writing tasks, while 21.4% students indicated that they always rely on AI writing tools for every writing task. Additionally, 25% of respondents stated that they sometimes use AI writing tools for specific tasks. However, only one student with 3.6% reported using AI writing tools rarely, only when necessary. It shows that the majority of students frequently use AI writing tools in their writing processes, emphasizing a strong dependency on these tools for academic purposes.

Table 5

Frequency of Students' AI writing tool Usage

	Frequeny	Percent	Valid Percent	Cumulative Percent
•Always (for every writing task)	6	21.4	21.4	21.4
•Often (for most writing tasks)	14	50.0	50.0	71.4
•Sometimes (for specific writing tasks)	7	25.0	25.0	96.4
•Rarely (only when necessary)	1	3.6	3.6	100.0
Total	28	100.0	100.0	

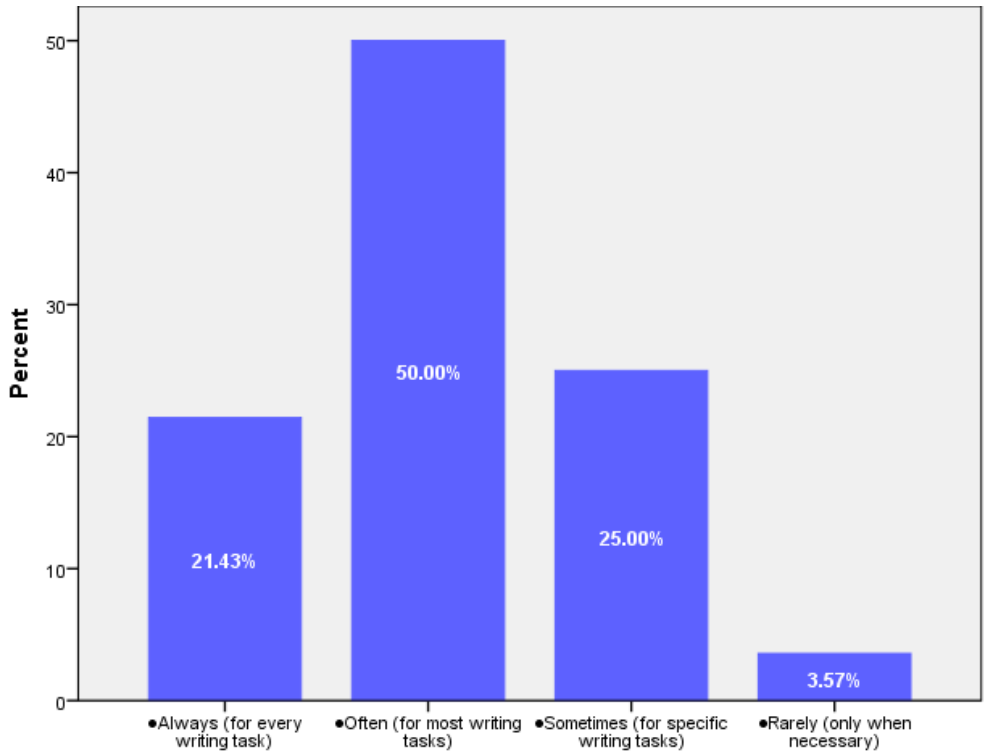


Figure 9

Frequency of AI Writing Tool Usage

- ⇨ The analysis of this question shows the frequent use of AI writing tools in students' academic practices. Approximately 71.4% of students always use AI writing tools or they often use them for most academic writing tasks. This high level of frequency use indicates that AI writing tools have become inseparable part of students' writing processes. Furthermore, these findings raise concerns about the possible weakening of independent writing skills, creativity, and critical thinking. Half of the students frequently use AI even when it may not be necessary, which indicates that they are dependent.
- ⇨ Moreover, 25.0% of students reported using AI writing tools sometimes, showing a selective use depending on the task's complexity. While, only 3.6% of respondents stated that they rarely use AI writing tools which may indicate unfamiliarity with these tools. To sum up, the data suggest that students are notably leaning toward AI assistance, validating the research problem of overreliance and highlighting a potential risk of the decreasing of soft skills essential for academic and professional success.

Question 5: Which AI writing tools do you frequently use?

The purpose of this question is to know the most frequently used AI writing tools among students in order to have a clear understanding of what these tools offer leading them to over-reliance, a significant majority of students (50%) reported that they use ChatGPT, representing 92.9% of the total cases (Figure 10,

		Responses		
		N	Percent	Percent of Cases
	ChatGPT	26	50.0%	92.9%

	DeepSeek	6	11.5%	21.4%
	Grammarly	9	17.3%	32.1%
	QuillBot	11	21.2%	39.3%
Total		52	100.0%	185.7%

Table 6). QuillBot was the second most commonly used tool by 21.2% of respondents (39.3% of cases).in addition, Grammarly was frequently used with 17.3% of responses (32.1% of cases). However, DeepSeek was the least utilized tool with only 11.5% of responses (21.2% of cases).

Regarding the "other please specify" question, only one student out of the twenty-eight respondents answered that he/she uses any type of AI tool that is available.

Table 6

Preferred AI Writing Tools among Students

				ıt of Cases
Total				%

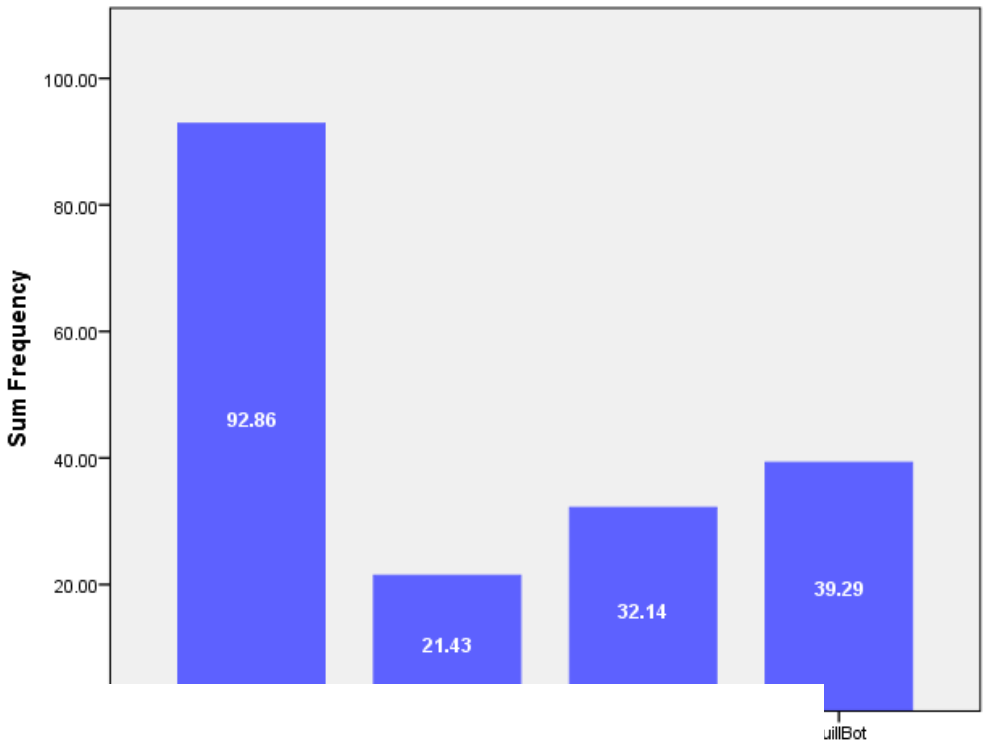


Figure 10

Students' Preferred AI Writing Tools

- ⇨ This data reveals that ChatGPT is the most common used and preferred AI writing tool among students. This dominant reliance on ChatGPT shows its accessibility and user-friendliness in assisting academic writing tasks. However, QuillBot and Grammarly are less used (21.2% and 17.3% of students, respectively). Tools that provide assistance in paraphrasing, grammar checking, and summarrizing. It indicates that students are not only seeking content generation but also assistance in language improvement.

- ⇨ Students use ChatGPT because of the growing trend of favoring "all-in-one" AI tool over specialized ones. In short, frequent reliance on one tool lead students to develop similar patterns (AI language), possibly reducing adaptability, critical evaluation of outputs, and independent decision-making skills (key soft skills that are crucial for academic and professional development).These results further strengthen the concern of overreliance on certain AI writing tools.

Section Three: Writing Challenges AI Usage

The third section addressed students' writing challenges and its relationship with AI writing tools usage. It seeks to reveal which aspect of academic writing that the students find the most challenging, whether these challenges led them to rely more on these tools, their confidence in completing academic writing tasks WITH AI writing tools, and their perceived level of dependence on such tools. The purpose of this section is to investigate whether students' reliance on AI is influenced by their struggles with academic writing and to see to what extent AI writing tools have become part of their academic writing processes.

Question 6: What aspects of writing do you find most challenging?

According to students' responses as presented in

Table 7 and Figure 11, Grammar and language accuracy were selected by 36.5% of respondents (67.9% of cases) as the most frequently difficult writing component. Additional significant challenge

		N	Percent	Percent of Cases
Writing Challenges	Grammar and language accuracy	19	36.5%	67.9%
	structuring arguments logically	11	21.2%	39.3%
	Generating ideas	16	30.8%	57.1%
	Understanding topics	6	11.5%	21.4%
Total		52	100.0%	185.7%

posed by students is generating ideas with 30.8% (57.1% of cases). 21.2% of respondents (39.29% of cases) reported structuring arguments logically, while understanding topics was the least reported difficulty with 11.5% (21.4% of cases). These results indicate that students may rely more on AI writing tools.

		N	Percent	Percent of Cases
Writing Challenges	Grammar and language accuracy	19	36.5%	67.9%
	structuring arguments logically	11	21.2%	39.3%
	Generating ideas	16	30.8%	57.1%
	Understanding topics	6	11.5%	21.4%
Total		52	100.0%	185.7%

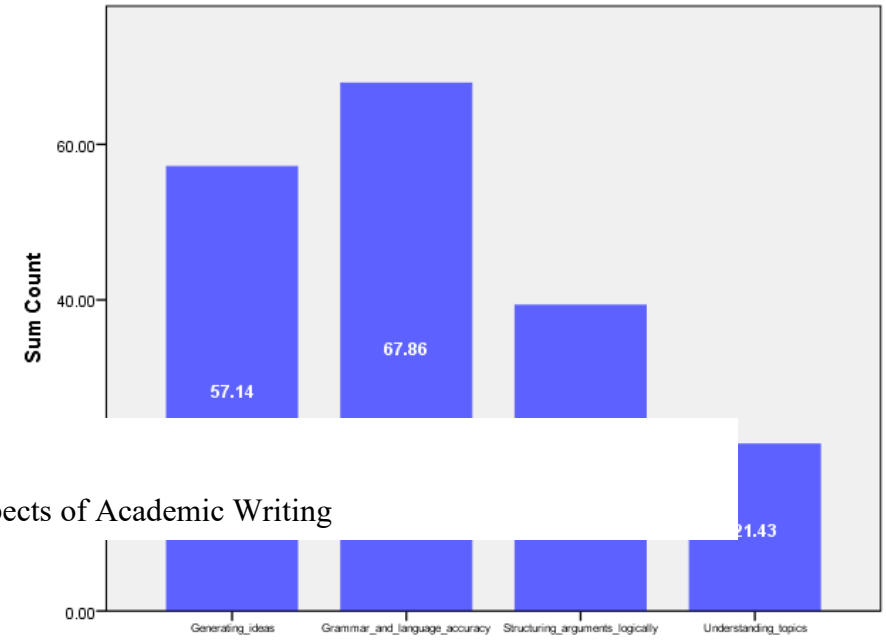
Table 7

Most Challenging Aspects of Writing

- The most commonly encountered wrting challenge by students is **grammar and language accuracy**. this suggests that students at this academic level still find difficulties in mastering technical skills in academic writing in English. This difficulty that students encounter serves as a motive for the integration of AI writing tools such as ChatGPT to assist with grammar and language improvement, consequently increase their dependency on these tools.
- The second most frequently reported difficulty (57.1%) is idea generation, which reflects a deeper cognitive problem associated with significant soft skills such as critical thinking and creativity. The results suggest that students are using AI writing tools to produce content and ideas, edit, and improve the grammar of their writing. This reliance may eventually lead to a decrease in their ability to think independently. 39.3% of respondents selected structuring arguments logically,

Figure 11

The Challenging Aspects of Academic Writing



indicating that these students struggle to organize their thoughts and arguments coherently. This

issue can lead students to seek external assistance from AI writing tools to suggest structures, over-relying on AI writing tools in this area can diminish students' personal development.

- ⇨ Finally, the least challenge reported by the students with 21.4% of cases is **topic understanding**, which indicates that respondents feel more confident in terms of surface level understanding but face significant challenges in expressing or organizing their ideas.
- ⇨ To sum up, the findings suggest that students' difficulties with academic writing can motivate and push them to use AI writing tools to ease the pressure they feel. The next question discusses whether these challenges lead students to use AI writing tools.

Question 7: Have you used AI writing tools to overcome these challenges?

As presented in Table 8 and Figure 12, in response to whether writing challenges led students to use AI writing tools, the majority of respondents (39.3%) reported that they often use AI writing tools to overcome these challenges. In addition, 35.7% of students indicated that they sometimes use AI writing tools when facing difficulties. A smaller amount of 21.4% stated that they always rely on AI writing tools due to these challenges, whereas only 3.6% claimed that academic writing difficulties was never the reason behind using AI writing tools.

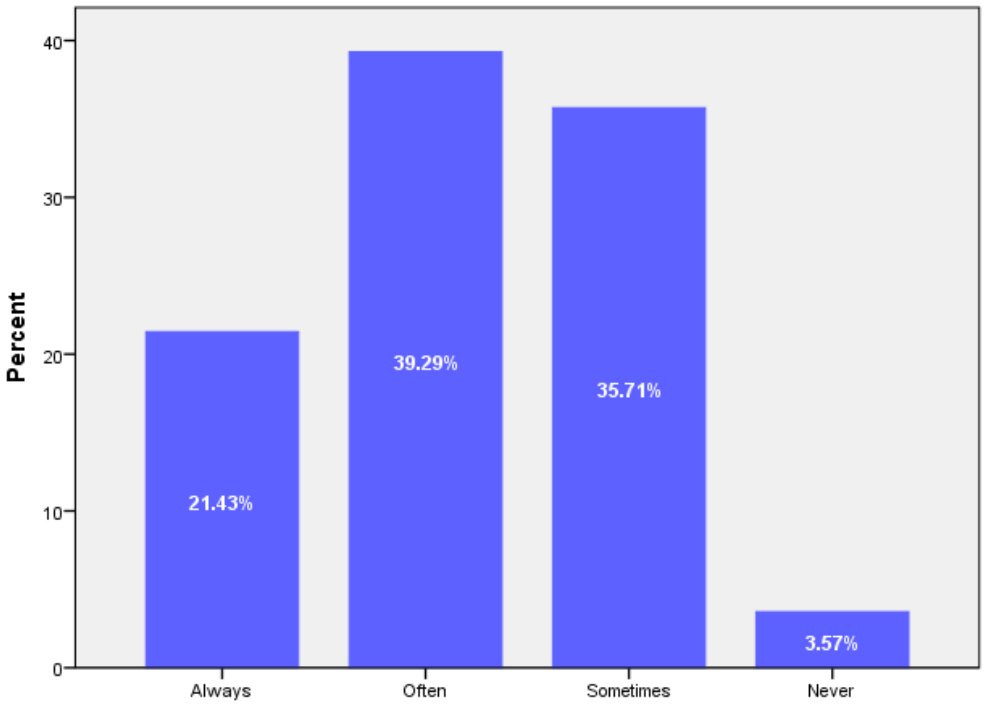
These results emphasize that academic writing challenges play a significant motivating factor behind students' AI writing tools usage, with frequent reliance observed among most participants.

Table 8

The Influence of Writing Challenges on AI Writing Tool Usage

	Frequency	Percent	Valid Percent	Cumulative Percent
Always	6	21.4	21.4	21.4

Often	11	39.3	39.3	60.7
Sometimes	10	35.7	35.7	96.4
Never				0.0
Total				



- ⇨ As suggested in the previous findings (Question 6), a significant majority of respondents with 94.4% reported that the challenges that they face in academic writing led them to use AI writing tools (either always, often, or sometimes). This supports the claim that students are using these tools not as assistance but a strategy to overcome difficulties in academic writing, which raises concerns about over-reliance.
- ⇨ If students use these tools frequently and repeatedly to improve writing areas such as, grammar, idea generation, and argument structure, they may skip essential cognitive processes needed to develop these skills independently. The long-term risk behind these behaviors is to hinder the development of key soft skills in writing.

Figure 12

The Effect of Writing Challenges on AI Writing Tool Usage

Question 8: How confident are you in completing academic writing tasks WITH AI writing tools?

The majority of the students with 67.8% expressed a high level of confidence when completing academic writing tasks using AI writing tools (in , Figure 13). A 46.4% of reported their confidence, while 21.4% of students indicated that they feel somewhat confident, while another 21.4% adopted a neutral stance. On the other hand, a smaller group of students reported lower level of confidence, with 7.1% feeling somewhat unconfident in completing writing-related tasks and 3.6% stated they were very unconfident

Table 9

Students' Confidence in Completing Academic Writing Tasks Using AI Writing Tools

	Frequency	Percent	Valid Percent	Cumulative Percent
Very confident	13	46.4	46.4	46.4
Somewhat confident	6	21.4	21.4	67.9
Neutral	6	21.4	21.4	89.3
Somewhat unconfident	2	7.1	7.1	96.4
Very unconfident	1	3.6	3.6	100.0
Total	28	100.0	100.0	

- ⇨ This question objective is to show whether students feel confident expressing their own thoughts independently in writing or when using AI writing tools. Many students have positive views towards using AI writing tools to complete academic writing tasks because it improves confidence in their writings. A large group of 46.4%, 21.4% reported being “very confident” and “somewhat confident” respectively.
- ⇨ However, these high percentages may be a signal to growing reliance on using AI writing tools for drafting, generating, or even editing their written work, indicating a strong reliance on AI writing tools for academic tasks. Additionally, neutral respondents may suggest that students recognize AI writing tools benefit but they are uncertain about its effectiveness, lack experience with these tools, or they may see it unethical to submit assignments which are not their own production (the 3.57% students that reported unfamiliarity with AI writing tools in question 2). On the other hand, a minority of respondents (7.1%, 3.6%) were not fully trusting or relaying on AI writing tools in writing tasks.

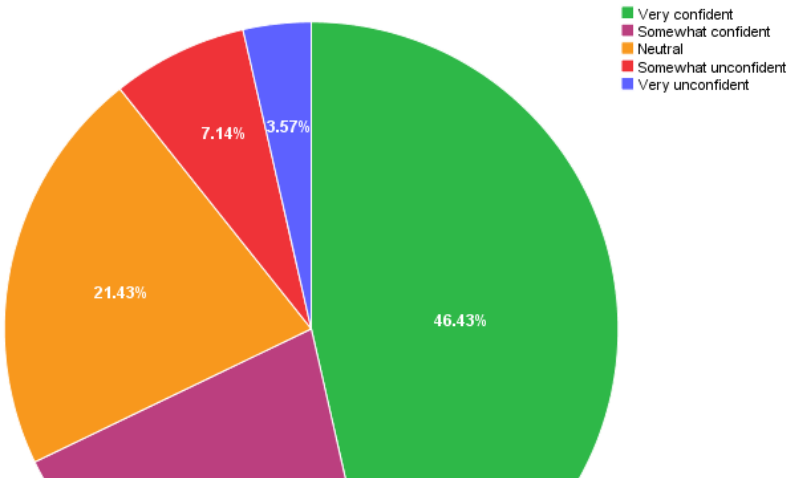


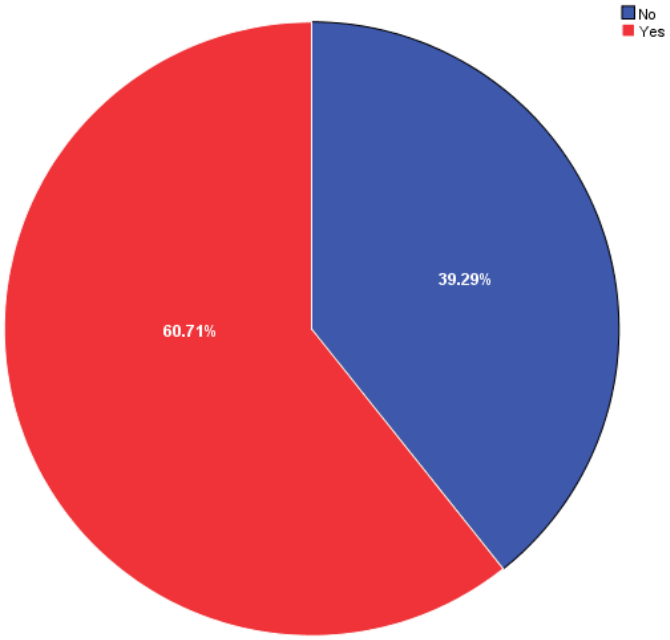
Figure 13

Students’ Confidence in Academic Writing Using AI Writing Tools

- ⇨ Overall, while AI writing tools gained a sense of confidence among students, the level of confidence and comfort in using them differs. Even though many students may be dependent and over-relaying on AI writing tools because of its benefits and efficiency, but there is still kind of awareness among others for its limitation or ethical consideration.

Question 9: Do you feel dependent on AI for your writing tasks?

Student have perceived dependence on AI writing tools for completing academic writing tasks as shown in **Table 10** and **Figure 14**. The responses revealed that a considerable number of students with



60.7% answered and admitted their reliance on AI writing tools. Whereas 39.3% answered that, they do not see themselves as dependent on these tools. These results highlight that the majority of the respondents recognize a degree of over-reliance on AI writing tools in academic writing tasks.

Table 10

Students' Perception of Their Dependence on AI for Writing Tasks

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	11	39.3	39.3	39.3
	Yes	17	60.7	60.7	100.0
	Total	28	100.0	100.0	

- ⇨ The majority of the students reported that they see themselves as dependent to AI writing tools for their writing tasks. the fact that over half of the students admit their dependence on these tools strengthen the idea that AI writing tools are no longer assistant technologies , it is now perceived as inseparable part in the students writing processes.
- ⇨ When students depend on these tools regularly they will eventually lose their ability to develop independent skills. The word "dependent" in this context implies that students are no longer practicing the learning process, as they should, seeking and prioritizing ease, speed, and effortless tasks over insightful and engaging learning.
- ⇨ However, is worthmentioning that 39.3% of students do not feel dependent maintaining their originality and unique voice in writing. This group of students may use AI writing tools but in resonable manner, they may be selective, critiques in the AI content or rely on the traditional writing methods (drafting, editing, and revising).
- ⇨ Overall, AI become a part of students learning processes mainly in writing, the dependence perception (rather than critically using) questions about how can such tools shape writing process. The findings highlights the importance of striking balance between AI writing tools benefits and the need to preserve students' originality, make independent choices, and engage in reflective thinking in academic writing.

Figure 14

Students' Perceived Dependence on AI Writing tools

2.2 Findings Related to Research Question two

The second phase involves the findings of the quantitative questions that are associated with the second research problem

- ➔ *"What are the perceived impacts of overreliance on AI writing tools on students' soft skills in academic writing?"*

Section Fourth: Soft Skills and AI Usage

The fourth section of this questionnaire examines the relationship between students' critical thinking and their AI writing tools use. The aim is to assess students' ways of engagement in the writing processes when using such tools in terms of evaluating AI outputs.

Question 10: When you receive an AI-generated response, how do you usually handle it?

Table 11 and **Figure 15** show the way students handle AI-generated outputs. This question is posed to evaluate the students' critical thinking when dealing with AI outputs. The results showed insignificant involvement with AI output, with half of the respondents responding that they accept the content produced by AI without making any modification.

However, 42.9% of participants reported making slight modifications to AI outputs, indicating an average level of critical engagement with AI outputs. On the other hand, only 7.1% of students selected that they carefully analyze and verify the generated content before using them, emphasizing a high degree of critical thinking with AI outputs. These results indicate that a considerable number rely on AI outputs with few or no critical assessment, while some students engage critically with AI-generated content. The second research question, which concerns the perceived impacts of over-reliance on AI writing tools on students' soft skills in academic writing, is closely related to these findings.

Table 11

Students' Perception of Their Dependence on AI for Writing Tasks

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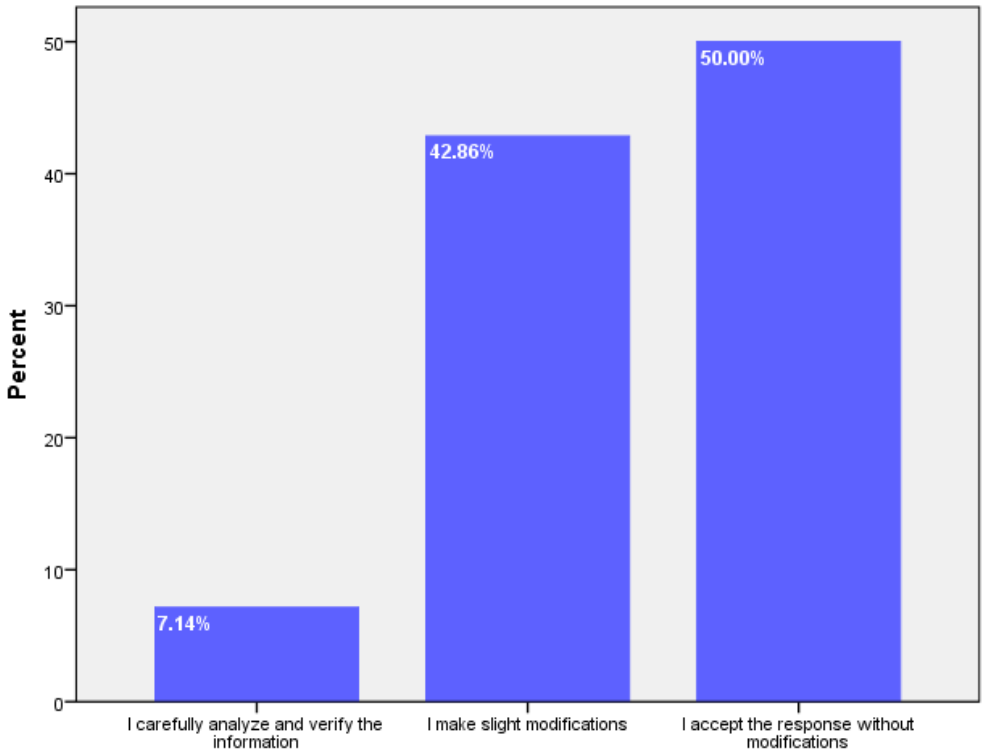

- ⇨ Students who copy-paste and accept AI outputs without modifications (50%) highlight a passive role in writing processes. This attitude point out that there is a noticeable decline in critical thinking skills, as students increasingly fail to evaluate, question, or analyze AI-generated content. At this level, if students trust AI generated content blindly, they jeopardize their ability to develop higher-order thinking skills required in academic context.
- ⇨ Similarly, students who make slight modification on AI outputs (42.9) may not be deeply engaging as well. Even though they appear to take more active role, their involvement often consists of refining or humanizing the AI-generated content to better reflect their academic level, rather than producing original ideas. This limited intervention with academic writing reflects a surface-level

Figure 15

Students' Approaches to AI-generated content

engagement with the task, probably to avoid plagiarism rather than critically assess the AI content. It could also reflect weaknesses in decision-making abilities.

- ⇨ 7.1% of students claim to analyze and verify AI content carefully. This minority of students may posit the soft skills needed for academic integrity and intellectual independence. It suggests their awareness of AI writing tools limitations and the ethical concerns regarding its use.
- ⇨ To conclude, accepting or minimally modifying AI outputs indicates that over-relying on AI writing tools affects students' soft skills, particularly critical thinking and decision-making. This passive role that students play in consuming AI outputs hinders the evaluative processes essential in academic writing.

Question 13: Do you believe that frequently using AI writing tools impacts your ability to generate original ideas independently?

The rational for including this item is to see students' insights on how excessive use of AI writing tools affect their originality. Findings revealed that significant number of students expressed concerns about the impact of AI writing tools on their originality as presented in Table 12 and Figure 16.

The majority of respondents 78.57% (either agreed with 60.7% or strongly agreed with 17.9%) indicated that AI writing tools affect their ability to generate original ideas independently. while the minority of 17.86% (either disagreed with 3.6% or strongly disagreed with 14.3%) do not believe that frequent use affected their originality.

Only 3.57% of respondents remained neutral neither agree nor disagree. The results suggest that the majority of the participants believe that AI writing tolls have a negative impact on their creative thinking skills and originality

Table 12 Students' perceptions of AI's Impact on Originality

				Cumulative
	Frequency	Percent	Valid Percent	Percent
Strongly Disagree.	4	14.3	14.3	14.3
Disagree.	1	3.6	3.6	17.9
Neither agree nor disagree.	1	3.6	3.6	21.4
Agree.	17	60.7	60.7	82.1
Strongly Agree.	5	17.9	17.9	100.0
Total	28	100.0	100.0	

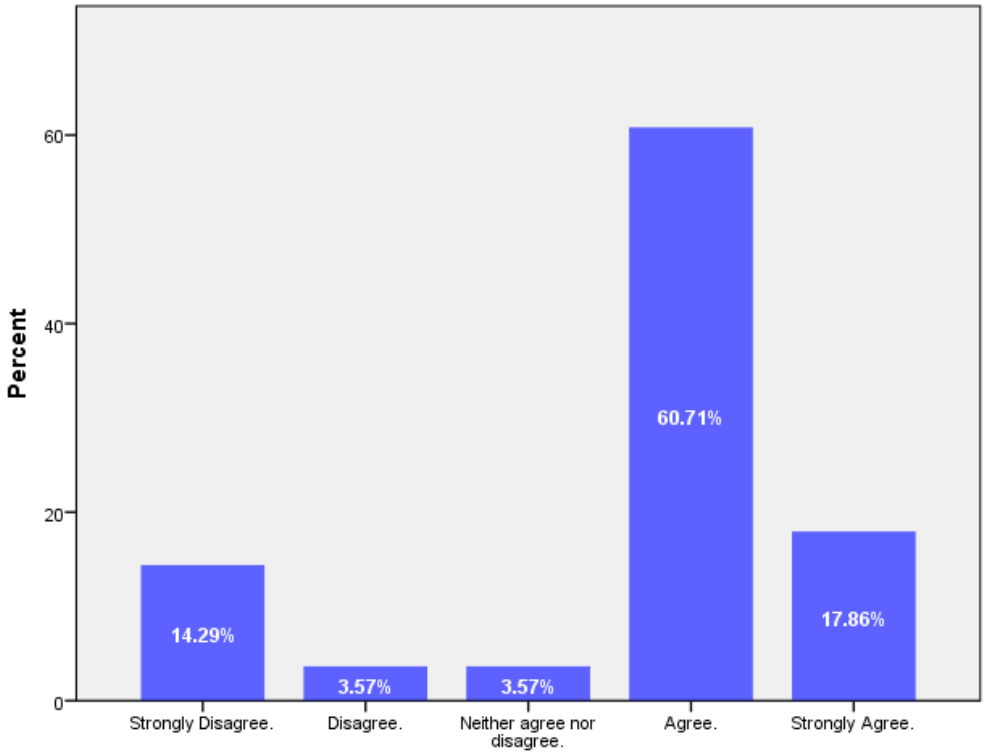

Figure 16

Students' perceptions on the Impact of AI writing tools on Originality

- ⇨ Students responses on whether AI writing tools affects their independent ability to generate original ideas or not reflects a serious concern regarding the impact of AI writing tools on originality, as one of the main soft skills in academic writing.

- ⇨ Approximately eighty percent (78.6%) of students perceive __and may even be experiencing__ a decline in their originality as a result to the excessive use of AI writing tools. Students are turning to AI because of the ready-made ideas, brainstorming, content generation, with a personalized context. These services may eventually affect their ability to produce original, creative, and unique ideas.
- ⇨ These results indicate that most most respondents are not just passively using AI writing tools (as mentioned in the previous interpretation), but they also reflecting how can these technologies hinder their independent thinking. In addition, it reported a significant issue that AI writing tools are transforming writing practices, and more importantly, replacing students' critical and independent thinking skills.
- ⇨ In contrast, the minority 14.3% (strongly disagree) and 3.6% (disagree) show that either their originality is unaffected because they know how to use these tools critically, or they are more confident in their abilities. The last group that were neutral suggest that they are unsure about AI effects on their originality.
- ⇨ Overall, students perceptions support the concern raised in this study that over-reliance on such tools risks diminishing students' originality in writing, which reflect the challenges students face in this matter between cognitive effort and convenience. This issue poses a serious threat to educational community on how to encourage students to benefit from AI writing tools (as it became a fact and cannot deny it) rather than replace their original thinking.

Section Five: AI Impact on Soft Skills

The final section responds to the perceived impact of AI writing tools on the three main soft skills: *critical thinking, decision-making, originality.* Respondents were asked to rate their level of agreement with three separate statements. Each statement analyzed through frequency table and bar chart regarding students' opinions.

Question 15: To what extent you agree with the following statements:

- **Statement 1:** *AI writing tools have improved my critical thinking.*

This statement is posed to know if there is a sign of improvement in critical thinking abilities while using AI writing tools.

	Frequency	Percent	Valid Percent	Cumulative Percent
• Strongly Disagree.	3	10.7	10.7	10.7
• Disagree.	15	53.6	53.6	64.3
• Neither agree nor disagree.	6	21.4	21.4	85.7
• Agree.	3	10.7	10.7	96.4
• Strongly Agree.	1	3.6	3.6	100.0
Total	28	100.0	100.0	

Table 13

Students' Perceptions of AI Writing Tools Impact on Critical Thinking

The results in **Erreur ! Source du renvoi introuvable.** Table 13 and Figure 17 indicated that overhalf of the students with 53.57% disagreed that AI writing tools have improved their critical thinking skills. In the same vein, 10.7% respondents strongly disagree with this statement.

While about 21.4% of participants were neutral, that is, neither in agreement nor disagreement. Conversely, a small number of respondents agreed (10.71%) or strongly agreed (3.6%) with this claim.

These results suggest that most students believe that AI writing tools either have little or no positive impact on improving their critical thinking skills.

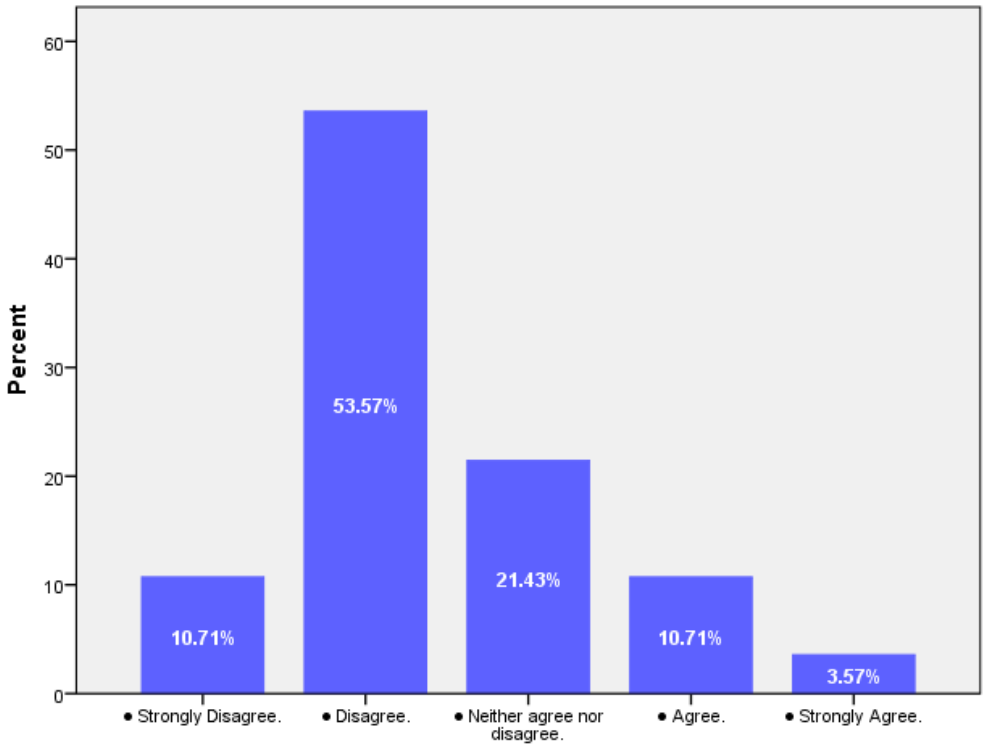

Figure 17

Students' Agreement Levels of AI writing Tools impact on Critical Thinking

- ⇨ The findings show a dominant negative perception among students. Most participants disagree and strongly disagree that AI writing tools have improved their critical thinking. This shows that students do not see AI writing tools as effective source to improve their ability to think critically. Furthermore, students may promote a superficial thinking because they do not engage profoundly with the writing material.
- ⇨ On the other hand, a few students agree and strongly agree with the statement. This small group probably sees AI writing tools as a challenging and provocative tool to their ideas or it offers to them new and effective ways in organizing and analyzing information. However, this low

percentage indicates that students may not perceive AI writing tools as a tool that can improve critical thinking skills.

- ⇨ Whereas, the neutral respondents, reported that they may be uncertain about the relation between AI writing tools and their critical thinking skills. For them, it neither helps nor does it hinder their thinking process.
- ⇨ In conclusion, the disagreement of the majority of the students in this sample with this statement provides a clear picture about students' perception regarding these tools. These findings align with over-reliance concerns of reducing cognitive engagement, which leads to passive consumption of information and highlights the need to rethink about AI writing tools role in academic writing, mainly where critical thinking is crucially required.

- ❖ **Statement 2:** *AI writing tools have made me more confident in making writing- related decisions.*

The findings from Figure 18 and Table 14 **Erreur ! Source du renvoi introuvable.** revealed a positive perception towards using AI writing tools to make d writing- related decisions. Half of the respondents (50%) agreed with this statement, and additional 10.71% students answered strongly agreed. Conversely, 25% disagreed and 3.6% strongly disagreed. While about 10.71% students remain neutral (neither agreed nor disagreed). Overall, most students feel that AI writing tools usage makes them more confident in academic writing tasks.

Table 14 Students' perceptions of AI's Impact on Decision-Making Confidence

	Frequency	Percent	Valid Percent	Cumulative Percent
• Strongly Disagree.	1	3.6	3.6	3.6
• Disagree.	7	25.0	25.0	28.6
• Neither agree nor disagree.	3	10.7	10.7	39.3

• Agree.	14	50.0	50.0	89.3
• Strongly Agree.	3	10.7	10.7	100.0
Total	28	100.0	100.0	

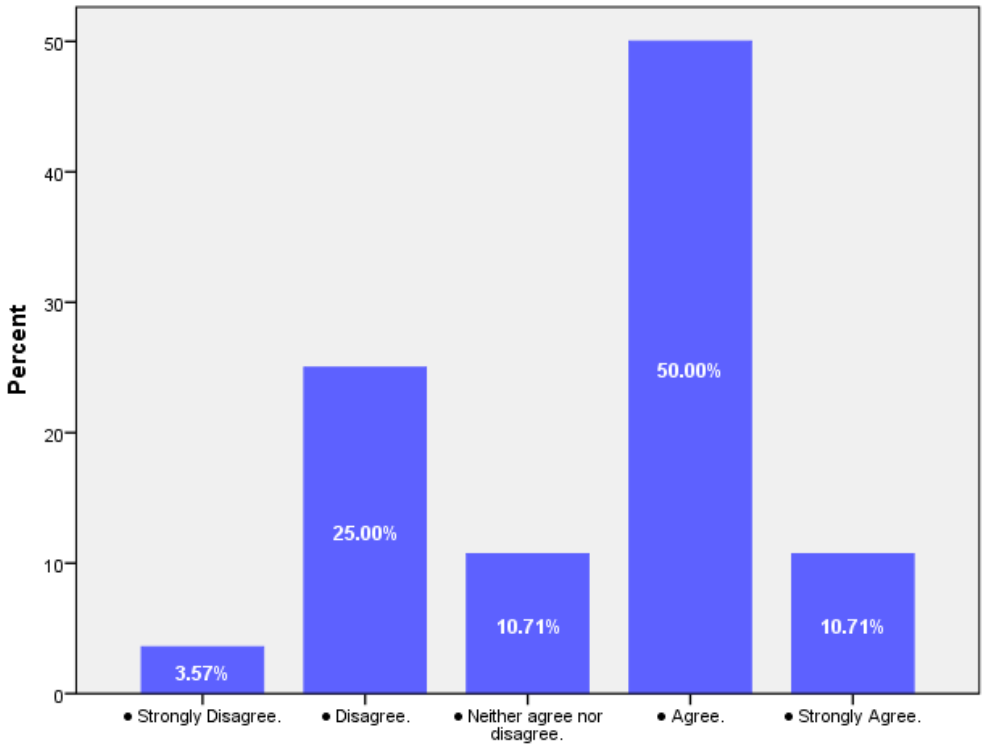

Figure 18

Students' Agreement Level Regarding AI Tools and Decision-Making

- ⇨ This statement is included in order to observe if students' confidence in making writing-related decisions with AI is higher than when relying on their own decision-making skills. According to the findings, there is a positive attitude among the majority of respondents (60.71% of the sample), which provides evidence that students feel more confident about their writings when using AI writing tools.
- ⇨ Their decisions about sentence structures, choice of words, organization of arguments, and even the content itself depend on the suggestions of these writing tools, for instance ChatGPT is suggesting. AI provide real-time and personalized ideas and suggestions that could either make

students dependent on these resources or assist them in validating their own decisions. This reliance can provide a sense of security when writing and submitting their work.

- ⇨ On the other hand, respondents who selected "disagree," "strongly disagree," or "neutral" to this statement may have lack of confidence on AI writing tools not to integrate them into their writing decisions. This limited is possibly due to uncertainty about their dependability or limitations.
- ⇨ In summary, AI writing tools shape decision-making in writing by questioning the extent of control students have over their writing processes. They may show an increasing reliance on AI to validate or replace their own critical decisions, which reflects the potential drawback of AI use: a reduction in students' confidence when making independent decisions. These findings demonstrate that over-reliance may hinder the development of students' independent decision-making in academic writing.

Statement 3: *AI writing tools have negatively affected my writing originality and creativity*. This statement is directed to examine students' perceptions on whether AI writing tools restricted their originality. AI writing tools as presented in Table 15 and Figure 19, a percentage of 32.14% of respondents agreed that AI writing tools influenced their originality and creativity, while an additional 17.86% strongly agreed. However, 17.86% of students disagreed, and 10.71% strongly disagreed. Furthermore, 21.43% of respondents remained neutral, indicating that they neither agreed nor disagreed. The findings signal that participants' opinions regarding the impact of AI on their originality and creativity were mixed, which suggests that these tools affects originality either positively or negatively**.**

Table 15

Students' perceptions of AI's Influence on Originality/Creativity

		Frequency	Percent	Valid Percent	Cumulative Percent
	• Strongly Disagree.	3	10.7	10.7	10.7
	• Disagree.	5	17.9	17.9	28.6
	• Neither agree nor disagree.	6	21.4	21.4	50.0
	• Agree.	9	32.1	32.1	82.1
	• Strongly Agree.	5	17.9	17.9	100.0
	Total	28	100.0	100.0	

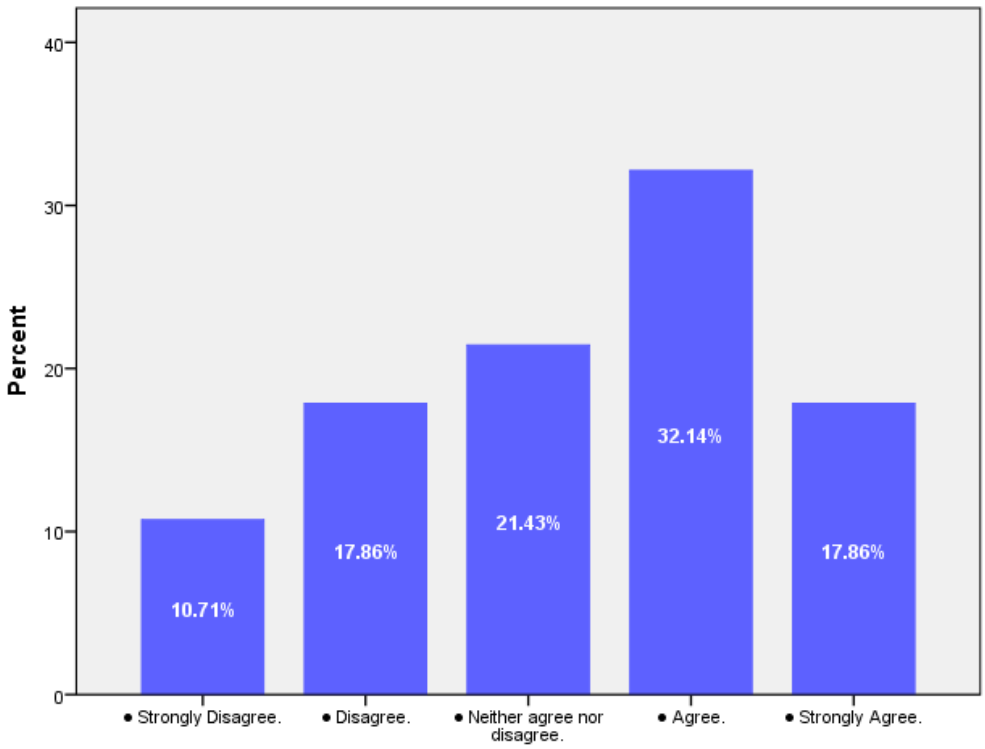

Figure 19

Students' Agreement Levels Regarding AI writing tools and Originality/Creativity

- ⇨ Students' perceptions regarding the impact of AI writing tools on students' creativity and originality in writing are varied. Half of the students agree that AI writing tools have negatively influenced their ability to write original ideas. The fact that these students acknowledge that AI writing tools threaten and decline their independent and autonomous writing, yet continue to use them, may point an unconscious dependence.
- ⇨ In other words, students seem to accept AI outputs (as mentioned previously) even though they are aware of the potenial compromises due to its speed and tailored usage. However, a considerable number of respondents respondents feel either uncertain or disagree (the other half) which reflect the differences of interaction with these tools. This data is an early evidence of over-reliance on AI writing tools as it shows that students may be experiencing it unconsciously.

2.3 Cross-Tabulations Results (crosstabs)

After presenting the descriptive statistical results of the quantitative phase, this sub-section analysis aim is to explore relationships between variables. The aim is to better undestand the impact of AI writing tools usage on students' perceptions through cross-tabulations.

- The following is the crosstabs selected by the researcher to examine the relationship between students' dependency on AI tools and the the key variables of the study's focus. The first crosstab, which compares AI users duration and AI dependency, was selected to investigate if the extended experience with AI tools correlates with increased reliance. The second crosstab, which explores the relayionship between AI dependency and students' content-handling strategies (indicating critical thinking skill). The third crosstab, that determines whether students' ability to generate original ideas in influenced by their depence on AI writing tools (originality). The last crosstab, which explores whether AI dependency affects students' independent decision-making skill.

❖ **Question 3** AI users duration

❖ **Question 9** AI dependency

Table 16 presents the cross-tabulation between the AI duration usage and students' self-reported dependency. The duration is classified into four groups: 3–6 months, 6–12 months, over a year, more than two years, while dependency was presented in yes/no dichotomy.

Table 16

Cross-Tabulation of AI writing tools Usage Duration and AI Dependency

		AI dependency		
		No	Yes	Total
AI usage duration	•3–6 months	5	1	6
	•6–12 months	2	2	4
	•Over a year	4	6	10
	•More than two years	0	8	8
Total		11	17	28

From this cross-tabulation table we notice, students who reported using AI writing tools for only 3-6 months do not report dependency (5 respondents). However, all the students who used AI writing tools for more than two years declared that they feel dependent (8 respondents). This transition from shorter usage to longer usage durations reveals an increasing number of responses of students who perceive themselves as dependent on AI writing tools. This response indicates a positive relationship between long-term AI writing tools usage and over-reliance on them.

- The second crosstab seeks to understand how dependent students on AI writing tools handle its outputs .

❖ **Question 10** AI and content handling strategies (critical thinking)

❖ **Question 9** AI dependency

Table 17 shows diversity in behaviors among students who reported being dependent on AI writing tools and those who did not. Among 11 respondents who do not feel dependent on AI, 10 students reported that they accept AI responses without any modifications and only one students made slight modifications. Whereas, among 17 respondents who feel dependent on AI, 11 students reported making slight modifications to AI outputs, 4 students reported accept it without any modifications, and 2 students indicated they accept AI responses without any modifications.

Table 17

Cross-Tabulation of AI Content Handling and AI Dependency

		AI dependency		
		No	Yes	Total
AI content handling	I carefully analyze and verify the information	0	2	2
	I make slight modifications	1	11	12
	I accept the response without modifications	10	4	14
Total		11	17	28

The findings reveal that students who do not feel dependent on AI are indeed accepting AI generated content without making changes, which make their “non-dependent” claim questionable. Whereas, students who feel dependent on AI writing tools Trust more its content and make slight or no changes. This contradiction suggests a disconnection between students’ perceived dependence and their actual

practices with AI writing tools. The behavior of copy pasting AI outputs without modification may point out their unconscious over-reliance on AI and its ability to reduce their critical engagement with writing.

The next crosstab is about how dependent students perceive the impact of AI writing tools on their originality

- **Question 13** AI effect on students ability to generate original ideas
- **Question 9** AI dependency

Findings in Table 18 show the cross-tabulation between the AI dependency and students perceptions about their effect on originality, between question 9 (AI dependency) and question 13 (AI effect on originality). AI frequency was presented through yes/no dichotomy and students' perceptions were measured through five-point Likert scale.

Table 18

Cross-Tabulation of AI writing tools Dependency and their Effect on Originality

		AI effect on originality					
		Strongly Disagree.	Disagree.	Neither agree nor disagree.	Agree.	Strongly Agree.	Total
AI dependency	No	0	1	0	6	4	11
	Yes	4	0	1	11	1	17
Total		4	1	1	17	5	28

According to the findings, students who reported themselves as dependent to AI writing tools also agreed with the statement that frequent use of AI writing tools affect their ability to generate original ideas (12 respondents). Furthermore, students who perceive themselves as non-dependent to AI writing tools, also agreed and strongly agreed with the statement (10 respondents), which indicate that the majority of

students believe that AI writing tools affect their ability to be original and creative either being dependent or non-dependent on them.

The last crosstab aims to identify the relationship between students' dependency and its effect on their decision-making in writing.

- **Question 15** effect of AI tool on decision-making
- **Question 9** AI dependency

Table 19 presents students agreement and disagreement on the impact of AI tool on writing-related decisions and their perceived dependency. Among 11 non-dependent students, 4 students disagreed that AI writing tools affect their decision-making, 6 students agreed, and only one students neither agree nor disagree. While 17 students who perceive themselves as dependent to AI writing tools varied in their view of its effect on decision-making. 11 students either agreed or strongly agreed, 4 students either disagreed or strongly disagreed students, and 2 students were neutral.

Table 19

Cross-Tabulation of AI writing tools Dependency and their Effect on Students Decision-Making in Writing

		AI dependency		
		No	Yes	Total
AI writing tools affect decision-making	• Strongly Disagree.	0	1	1
	• Disagree.	4	3	7
	• Neither agree nor disagree.	1	2	3
	• Agree.	6	8	14
	• Strongly Agree.	0	3	3

Total	11	17	28

The over-reliant students on AI writing tools tend to experience its impact on their decision-making process, either positively or negatively. This may suggest that AI writing tools have an impact on the content of writing and cognitive processes such as evaluating suggestions and writing structure choices. These crosstabs analysis suggest that students who reported higher level of dependency on AI writing tools might engage less in the writing processes being less critical about AI output, perceive impact on their decision-making, and show sign of a negative impact on generating original ideas. Even though these findings may not be statistically significant (due to small sample size) , it offer crucial insights regarding how over-reliance on AI writing tools over time may affect key soft skills in writing.

3. Qualitative Results

For deeper insights, a qualitative data was obtained from the open-ended answers in the online questionnaire from 28 participants. In this section, the researcher presents the thematic analysis aiming to understand students' perceptions on AI writing tools over-reliance and its effect on key writing soft skills namely, critical thinking, decision-making, and originality. For each open-ended item, all the 28 responses were trancribed into a table, in which the respendents statements presented in one column and the analytical noted, codes, and themes in adjacent colimns. Key themes were identified from these responses highlighting both benefits and drawbacks of using AI writing tools in academic writing. Using Braun and Clarke's (2006) six-phase framework for thematic analysis, we identified five major themes that demonstrate participants' experiences manually organized in Microsoft Word for coding.

3.1 Thematic analysis procedure

- Responses were read multiple times

- Key phrases were hilighted and assigned into initial codes. In this step approximately 200 codes were produced across all questions.
- Then codes were grouped into coceptually related initial themes. For instance, codes such as, laziness, dependency, and effort reduction, were grouped into “Reliance Concerns”.
- Later on, these themes were reviewed, mapped, and named onto five broad themes relevant to this study. Table 20 illustrate a sample of the coding process from a follow-up question to Question 13 *(Do you believe that frequent use of AI tools affects your ability to generate original ideas independently? **Explain why**.)*

Table 20

Sample of Thematic Coding Process

Participants Rsponses	Initial Codes	Initial Themes	Broader Themes
instead of original ideas i get well and organized ideas	Prefer AI-generated Ideas	Reliance on AI for Idea Generation	AI Writing Tools Decreases Originality, Overreliance, AI as Double-Edged Sword
It hinders one's thinking and creativity i don't get any new or good ideas anymore	Hinders Creativity	AI Limits Creativity	
AI tools or i can say ChatGPT (the most application i use) are easy to use and give instant feedback in no time so yes i think it affected my ability to write by my own	Instant Feedback Affected Originality	AI Limits Originality	
It limits my own originality and can make me lazy , I won't be giving efforts to the task	Originality Limitation	Dimininished Creative Engagement	

	Laziness Reduce Efforts	
I strongly agree, because the world till now is struggling to draw the the ethical lines of the use of AI. Students are using AI with no regard on it's impact on their writing in the future, they are abusing it and losing originality. This innovation's potentials are double edged	Ethical concerns, limited originality	AI Misuse Overuse AI as Double-edged

3.2 Themes Analysis and Interpretation

Note:

No significance testing (e.g., Chi-square test) was conducted due to limited sample size (n=28).

Theme 1: Perceived AI writing tools Benefits

Students demonstrated several benefits that AI writing tools offer to improve their writing mainly in idea generation, essay structure, and grammar correction (main writing challenges reported by students in question 6). In addition, many students believe that AI generated content helps them overcome "writer block" because of its capacity to generate relevant ideas. For these students, prompting AI to generate and brainstorm ideas made them more confident about their writing.

The following are some quotes of students' responses:

- *"AI helped me in structuring my essays logically"*
- *"By providing clear and well-structured paragraph or essay"*
- *"It helps giving examples of how we structure the idea smoothly"*
- *When I'm stuck it helped me generate ideas"*
- *"AI writing tools definitely help me fix my grammar and sentence structure"*

However, external assistance in structuring essays may reduce cognitive engagement with writing task. When students use ready-made standardized structures they will overlap cognitive writing process. Eventually, this reliance may lead students to risk a surface-level grasp of essay writing rather than deeper understanding of rhetorical moves (strategies used to strengthen arguments and persuasive appeals). When using AI suggestions in the brainstorming ideas and thinking phase, students passively adopt these suggestions and engage less in the critical analysis, as well as, decision-making of these ideas and their relevance.

Theme 2: Undermine Critical Thinking Skills

Many students perceive that relaying on AI writing tools for writing has weakened their ability to solve problems and think critically. Instead of planning and analyzing essays independently, they indicate becoming "*lazy*" and "*reliant*" on AI output. For instance, one student pointed, *"Made me too lazy to do any of my assignments that would've helped me with my writing skills"*, which indicates that they use AI writing tools without questioning their reliability to save time and effort on assignments.

Others stated that relaying on these tools' quick answers "*makes the mind rigid, dependent"* and it even "*kills the confidence in writing skills".* In other words, students are aware of AI tool impact on their cognitive skill and have admitted being less confident in their own ideas *"I become more unconfident about my thinking skills"* as they believe on AI perfection. However, they still use and rely on them due to *"task complexity"* and *"time limitations".*

These findings show that although writing becomes easier, it comes at the cost of practicing and improving writing skills. Students acknowledge skipping careful reasoning and evaluative efforts by frequently using AI writing tools, consequently, reduce their critical thinking skills.

Theme 3: Weakening of Decision-Making

Students also express concerns about the impact of AI on decision-making. A considerable number of respondents admitted using AI suggestions over trusting their own judgments. A good example given

by student while having the answer and still prefers to check it in ChatGPT *"I have the answer but I feel like it is wrong, so I refer to use AI".* This describes how students lack of self-confidence and replace AI writing tools to make decisions for them. They acknowledge this several times *"I don't think twice and I just use it,"* and immediately return to AI even when they have their own ideas "*even if i had my own ideas i prefer the one suggested by ChatGPT"* as it appears *"perfect"*

According to this data, students' decision-making has eventually become weaker over time due to frequent AI use. Some students said that they feel "*stuck"* when forced to write without AI in tests and academic settings (when AI use is not allowed).

Theme 4: AI Writing Tools Decreases Originality

One of the key concerns related to AI reliance in writing is that it lessens originality. Students' responses reveal that AI writing tools limited their creativity and originality. For example, one student pointed that AI *"repeat the same patterns, ideas, words"* which makes *"the majority of students who use it have similar if not identical writing styles."*

In their view, AI assistance has cost them their unique voice and independent thinking skills. This may be due to the fear of judgment and seek perfection, which make AI output safer and polished, yet it is generic. AI pre-set patterns make students writing less personal and less original. They also notice becoming gradually over-relying *"make me always rely on them without giving my personal touch".*

Theme 5: Overreliance, AI as Double-Edged Sword

Students refer to AI writing tools as "*double-edged*" or as "*a bittersweet"* because it has both benefits and drawbacks. Many students illustrate mixed perceptions, as AI is convenient assistant, yet over-relying on it diminish students' development of essential soft skills namely, critical thinking, decision-making, and originality. They believe that users are responsible on how to deal with these tools *"that AI writing tools were invented to help us, so our use is what affects us".*

In other words, The issue is not the use of AI tools in writing, but the overreliance on them to complete entire tasks. Some students prefer to rely on AI writing tools to entirely complete assignments stating, *"If AI can make it faster I don't bother doing it my own".* Their wish to save time, avoid cognitive efforts, and *"enhance scores,"* indicates a behavioral and ethical problem, not a technical one.

4. Discussion of the Findings

This section of the research discussed the main findings revealed from analyzing and interpreting quantitative and qualitative data. It focuses on how these results are related to research questions and objectives. Students insight regarding the impact of over-reliance on AI writing tools on their soft skills offer valuable insights that help address the research questions. The small samlpe size in this study restricts generalizability as well as the absence of interviews or focus groups that limited the depth of exploration. In addition, students' subjective responses that may introduce personal bias.

Students held mixed perceptions. Many participants agreed on the convenience, however, a significant percentage expressed concerns that the frequent use of these tools hinders the development of writing cognitive thinking skills, which suggests that they have experienced passive engagement in writing processes either intentionally or unconsciously. In the same vein, Gerlich (2024) highlighted the growing risks of cognitive offload due to dependence on external tools that reduce the cognitive load on students' memory. Similarly, Zhai et al. (2024) indicated that over-reliant students on AI writing tools scored lower analytical reasoning and were less critical of AI suggestions.

Additionally, some of respondents did not acknowledge their AI dependency might be due to unawareness of how they should practically use AI writing tools. For instance, in terms of decision-making the data uncovered the majority of students do not evaluate AI generated suggestions, whether they modify AI output to sound more natural and student-like content believing that instructors would not detect it. Consequently, they gradually lose confidence in their writing skills due to fear of committing mistakes as

noted by some respondents. Zhai et al. (2024) indicated that individuals' motivation to engage in independent thinking and analysis may decrease when they regularly rely on AI for decision-making on a regular basis. Students need to understand that they learn through errors, and the quick fixes may not replace the need for deeply engaging with learning process in academic or professional settings.

Furthermore, several participants prioritize polished writing over original writing. Some students use AI despite their fear of unintentional plagiarism or lack of personal voice productions due to excessive dependence. The leading factors differs from students to another, but they share common underlying reasons such as lack of motivation, pressure of deadlines, the desire to appear competent, or simply laziness.

These views correspond to Duhaylungsod and Chaves (2023), who stated that even though AI-powered conversation systems reduced the time spent in conducting research, several students expressed worries that over-reliance may cause them to decreasing their creativity and decision-making abilities over time.

Students asserted using AI to generate and brainstorm ideas using ChatGPT expressing concerns about losing their ability to think critically. They even pointed a kind of rigid mind, as AI suggestions were often repetitive and lacked creativity, reflecting AI tendency to recycle existence patterns. For example, Krullaars et al. (2023), as stated in (Zhai et al. 2024) argue, “AI dialogue systems offer pre-formulated answers; this practice can curtail students’ freedom to convey their unique thoughts and viewpoints”. In other words, AI writing tools are effectively acting as game changer in students’ writing.

To sum up, traditional way of learning and writing emphasize obtaining essential skills such as, critical thinking, decision-making, and originality. However, improving these areas with current technological development seems to be challenging. When students rely excessively on AI writing assistants, their cognitive skills can be reduced over time unintentionally. Therefore students, teachers, and even policy makers need to find a balanced approach were AI is used as a tool to assist rather than to

replace students work by ensuring active engagement with content construction, developing arguments, and preserve students' unique writing voices.

5. Conclusion

In the current chapter, the researcher analyzed discussed the collected data obtained from the questionnaire. It revealed crucial insights related to students' perceptions of AI writing tools and their impact on students' soft skills. The chapter was organized thematically to present quantitative and qualitative data connected to research questions. It involves description of students' questionnaire, quantitative analysis and interpretation results (organized by research questions), cross-tabulations analysis, qualitative thematic analysis, and discussion of findings.

The findings revealed that students held mixed perceptions. Although some students appreciate AI writing tools convenience, others see that over-reliance on it led them to passive engagement with writing processes. Academic writing demands such as, time pressure, fear of committing mistakes, and tasks complexity led students to rely on these tools. Students' soft skills namely, critical thinking, decision-making, and originality, were diminished due to their over-reliance on AI writing tools

General Conclusion

1. Summary of the Findings

Recently, the integration of AI writing tools into the educational context, particularly in writing, has raised serious concerns about the potential risks these tools may pose. The growing reliance on these tools among EFL learners transformed the way they approach writing tasks.

Therefore, the present study aimed to explore the perceived impacts of over-reliance on AI writing tools on students' soft skills namely, critical thinking, decision-making, and originality among a sample of first-year Master's students in Sciences of Language branch. Accordingly, this study sought to answer the research questions raised by the researcher. A mixed-methods research was conducted as it used an online questionnaire to gather two types of data using closed-ended and open-ended questions. Due to time constrains and unavailability of participants, interviews and focus groups were not feasible in the current study as planned. Therefore, this limitation restricted the depth data that could have enriched the findings. The quantitative responses from the closed-ended questions were analyzed using descriptive statistics and cross-tabs via SPSS and the quantitative responses from the open-ended questions were analyzed through thematic analysis, conducted manually in Microsoft Word. A sample of 28 first-year Master's students in Sciences of Language answered the questionnaire within a week. Accordingly, the findings from this questionnaire revealed a significant insights that while students believe in the usefulness of AI writing tools and their benefits in improving their writing such as in grammar and idea generation, the majority of them also expressed concerns about the fear of reducing their writing abilities.

To address the first research question, the EFL students have complex and varied perceptions regarding the role that AI writing tools plays in their writing abilities by giving them a value, as well as, questioning their impacts on their cognitive skills during their learning journey. Students rely on AI writing tools at this academic level primarily to overcome surface-level issues such as grammar errors or simple vocabulary usage. However this reliance extends with time to diminish students' soft skills and engagement in the writing processes making AI writing tools a substitution rather than an assistant. In

other words, since AI has become the source of content generation, problem-solving, thinking, and decision-making, it emerges that students do not **use** AI but they **over-rely** on its outputs. This behavioral shift among students suggest that they are less engaged in questioning critically, revising drafts, or even taking their own decisions in writing.

Additionally, while students report that AI writing tools are only used to improve their written products, the results show a notable contradiction. Many students accept AI generated content as originally generated or make slight modifications, which reflect the passive relationship they have with these tools, highlighting the possible erosion in the intellectual effort with critical thinking, decision-making, and originality. Furthermore, the nature of AI systems in using the pre-existed data while answering students' queries often hinders students' creativity, replacing their unique voice and personal touch with generic outputs or ideas.

As for the second research question, the risk of over-reliance becomes a reality. Students perceive that even though AI writing tools were beneficial for them in many aspects, the extensive and habitual use made them lose their ability to think critically, take their own decisions, and writing identity. Thus, students acknowledged that their over-reliance on AI writing tools in long run may diminish their academic and skills development. Yet they declare that they still prefer to rely on it, prioritizing efficiency over engaging with the writing process meaningfully and deeply.

In summary, the findings reveal that although students may not fully recognize the long-term risks of over-relying on AI writing tools, they often feel trapped in a cycle driven by time constrains and academic pressure, which encourages frequent use of these tools. Consequently, over-relying on these tools turns the writing skill from a thinking and cognitive process to a mechanical task with few clicks.

The more students over-rely on AI writing tools, the less engaged they become in cognitive efforts that academic writing requires. While it is the user's responsibility to know how to use AI writing tools

logically and critically, there should be strict pedagogical guidance to encourage students to preserve their writing abilities in AI era.

2. Pedagogical Implication

According to the findings there are some pedagogical implications that we suggest for both teachers and students to preserve students' development of their soft and hard skills:

- Soft skills development in academic writing. Because over-reliance on AI writing tools was perceived to have a negative impact on students' critical thinking, decision-making, and originality, the writing curricula in higher education needs to emphasize the reflective thinking tasks to help students think more about building their cognitive skills rather than submitting generated products.
- Clear policies and pedagogical approaches should be developed to acknowledge AI writing tools limits and the risks behind misusing it on their academic and professional career. Teaching students how to use AI writing tools critically and, more importantly, ethically, not passively relying on it.
- Teachers should be trained about AI writing tools. Since some teachers rely on the traditional way of teaching, assessment strategies, and are less experienced with these technologies, they may not be able to differentiate between students and AI writing. Therefore, more attention needs to be given to students' reasoning and writing process than the final products.
- Further research should be done about the long-term impact of AI writing tools on students learning and writing. For instance, a longitudinal research on how these tools are shaping students' writing habits and identity over time.

3. Study Limitations

There are several limitations that must be acknowledged in this study:

- This study relied on a small sample size (from 28 students) in a mixed-methods research. While the qualitative insights were rich and informative the small sample size in the quantitative responses restricts the generalizability of results particularly in finding relationships between variables in crosstabs. Despite the researcher efforts to reach as many participants as possible including, contacting class delegates, posting the online questionnaire multiple times in students Facebook group, and even meeting some students face-to-face the final sample was limited to 28 respondents within a week.
- Another limitation was time restriction. The researcher was unable to conduct more in-depth qualitative methods such as interviews or focus groups which could have added greater depth and triangulation to the findings.
- Throughout the research process, the research topic as well as the methodology changed several times. These shifts were necessary due to time limitation and research pressure.
- This study was based on students' self-reported perceptions which may not capture the actual writing process and soft skills development. Some results may be biased or uncertain.

While AI writing tools offer support, uncritical reliance may hinder intellectual development of important soft skills such as critical thinking, decision-making, and originality in writing. In addition, these tools reduces students' opportunities to practice and grasp the technics and strategies that assist them to become good writers and future researchers. As the educational contexts are gradually integrating AI writing tools, it is crucial to comprehend not only its benefits but the other side of the story which is the long-term effects in students' soft skills and academic growth.

Finally, future research is encouraged to explore more deeply this issue. In addition, studies could also explore the impacts of AI tools across other language learning skills namely, speaking, reading, and

listening. It would be beneficial for future researchers to give more attention to students' academic levels and adapt diversity of data collection methods such as, interviews, focus groups, and experimental designs, to gain more comprehensive understanding of this issue.

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Appendix

Students' Questionnaire

Dear Participant,

This questionnaire is designed for M1 students as part of a research study aimed at investigating students' perceptions of AI writing tools and their impact on students' learning. As AI writing tools become increasingly popular among Algerian EFL students particularly at Biskra University, this study seeks to examine their influence on students' soft skills (personal and cognitive qualities), particularly in areas like critical thinking (the ability to analyze, evaluate, and synthesize information), decision-making (making purposeful choices about content, structure…etc.), and originality (personal, novel, and unique ideas). Your feedback will assist us in understanding the extent to which AI impacts academic writing.

Instructions:

- Participation is **voluntary**.
- All responses will be kept **confidential** and **anonymous**.
- Please answer based on your own experience with AI writing tools.
- There's no right or wrong answers, please be as **honest** and **accurate** as possible.
- If you have any questions or need **further clarification**, feel free to reach out to the researcher at the following email address: lamiaath389@gmail.com

* Indicates required question

Section 1: Background Information

1. How would you rate your current academic writing ability? *

(Please choose the option that describe your experience with writing)

- ◯ Very Poor
- ◯ Poor
- ◯ Average
- ◯ Good
- ◯ Excellent

Section 2: Familiarity with AI Writing Tools

2. How familiar are you with AI writing tools? *

AI writing tools *are digital applications uses artificial intelligence to assist in generating, editing, or enhancing written text such as, ChatGPT.*

(Please select one answer)

- ◯ Not familiar at all
- ◯ Slightly familiar
- ◯ Moderately familiar
- ◯ Very familiar
- ◯ Extremely familiar

3. How long have you been using AI writing tools? *

(Please select the option that best describes your situation)

- ◯ •3–6 months
- ◯ •6–12 months
- ◯ •Over a year
- ◯ •More than two years

4. How often do you use AI writing tools? *

(Please select one answer)

- ◯ •Always (for every writing task)
- ◯ •Often (for most writing tasks)
- ◯ •Sometimes (for specific writing tasks)
- ◯ •Rarely (only when necessary)
- ◯ •Never

5. Which AI writing tools do you use? *

(Please select all that apply)

- ☐ •ChatGPT
- ☐ • DeepSeek
- ☐ •Grammarly
- ☐ •QuillBot

Others (please specify)

_____

Section 3: Writing Challenges AI Usage

6. What aspects of writing do you find most challenging *

(Please select all that apply)

- ☐ Improving grammar and language accuracy
- ☐ Structuring arguments logically
- ☐ Generating ideas
- ☐ Understanding the topic
- ☐ Other: _____

7. Have these challenges led you to use AI writing tools? *

(Please select one answer)

- ◯ Always
- ◯ Often
- ◯ Sometimes
- ◯ Rarely
- ◯ Never

- In what ways has AI assisted (or failed to assist) you overcome these challenges? Give examples *

8. How confident are you in completing academic writing tasks WITH AI writing tools? *

(Please select one answer)

- ◯ Very confident
- ◯ Somewhat confident
- ◯ Neutral
- ◯ Somewhat unconfident
- ◯ Very unconfident

9. Do you feel dependent on AI for your writing tasks? *

(Please select one answer)

Yes

No

- If yes, how has your reliance on AI influenced your writing skills or confidence when writing without it?

Section 4: Critical Thinking and AI Usage

10. When you receive an AI-generated response, how do you usually handle it? *
(Please select the option that best describes your situation)

I accept the response without modifications

I make slight modifications

I carefully analyze and verify the information

- Can you give an example where AI helped or misled you in forming an argument? *

Section 5: Decision-making

11. What factors affect your decision to use or modify AI-generated text? *(e.g., time limitations, task complexity, confidence in your writing abilities)* *

12. How do you decide when to rely on AI for writing tasks and when to work independently? *

Section 6: Originality and Creativity

13. Do you believe that frequent use of AI writing tools affects your ability to generate original ideas independently? *

(Please select one option)

- ◯ Strongly Disagree.
- ◯ Disagree.
- ◯ Neither agree nor disagree.
- ◯ Agree.
- ◯ Strongly Agree.

- Explain why? *

14. Have you ever felt that AI-generated suggestions limited your creativity *(made you feel less creative)*? Can you share an example? *

Section 7: Impact on Soft Skills

15. To what extent you agree with the following statements :*(Please select one option for each statement)* *

	• Strongly Disagree.	• Disagree.	• Neither agree nor disagree.	• Agree.	• Strongly Agree.
AI writing tools have improved my critical thinking.	⬭	⬭	⬭	⬭	⬭
AI writing tools have made me more confident in making writing-related decisions.	⬭	⬭	⬭	⬭	⬭
AI writing tools have influence-d my creativity or originalit-y in writing.	⬭	⬭	⬭	⬭	⬭

16. How would you describe your overall experience with AI writing tools in terms of personal developments as a writer? *(Has AI made you more confident, dependent, or critical of your own writing?)* *

Thank you for taking the time to complete this questionnaire.

ملخص الدراسة

اجتاحت أدوات الكتابة المدعومة بالذكاء الاصطناعي العالم خلال السنوات القليلة الماضية، من خلال استخداماتها العديدة في مختلف المجالات. لذلك، يتم دمجها على نطاق واسع في سياق تعليم اللغة الإنجليزية كلغة اجنبية، بالأخص لدى طلاب الجامعات. لكن مع الأسف، يلجأ العديد من طلاب الجامعات الى استخدام هذه الأدوات بشكل مفرط، للقيام بجميع واجباتهم الاكاديمية، عوض الاستفادة منها في بتعلم مهارات جديدة لتطوير رحلتهم التعليمية. لهذا السبب، تهدف هذه الدراسة لتسليط الضوء على مشكلة الاعتماد المفرط على أدوات الذكاء الاصطناعي الخاصة بالكتابة، من خلال فهم تصورات اولئك الطلاب حول الأثر الذي قد تسببه هذه الأدوات، وما قد تشكله من خطر على مهاراتهم الناعمة او الشخصية، للإجابة على أسئلة هذه الدراسة. تم تصميم دراسة هذه الظاهرة باستخدام منهجية البحث المختلط، متضمنة حالة مكونة من 28 طالبا في السنة الأولى لبرنامج الماجيستير، تخصص علم اللغة التطبيقي، بجامعة محمد خيضر – بسكرة. تم الحصول على البيانات من خلال استبيان يجمع بين الأسئلة المغلقة والأسئلة المفتوحة.

تشير نتائج هذه الدراسة الى أنه، على الرغم من المزايا العديدة التي تقدمها أدوات الذكاء الصناعي الخاصة بالكتابة، مثل انشاء نصوص بشكل تلقائي، وتصحيح للأخطاء اللغوية والنحوية، وكذلك القدرة على تقديم ملاحظات مخصصة انيا لكل مستخدم، الا أن الافراط في استخدامها بشكل مستمر يثير مخاوف بشأن التقليل او التراجع المحتمل في استخدام الطلاب لمهاراتهم الناعمة/الشخصية.

كما ان النتائج تظهر عدم اهتمام الطلبة بتطوير هذه المهارات، حيث انهم يميلون الى تفضيل السهولة، وسرعة الإنجاز، والعمل دون عناء، على القيام بتعلم التقنيات التي تساعدهم في رحلة التعلم او الكتابة مستقبلا.

الكلمات المفتاحية

أدوات الذكاء الصناعي الخاصة بالكتابة، التفكير النقدي، اتخاذ القرارات، الاصالة والابداع، الاعتماد المفرط.