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Department of English



Investigating The Dynamic Interaction Between Human Language and Artificial Intelligence Tools: AI Writing Assistants as a Case Study

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

Submitted by:

Miss LAREDJ Hinda

Miss MEBAREK Fatiha Nour Elhouda

Supervised by:

Dr. Khaled BELARBI

Co-Supervised by

Dr. Bouzouina ahmed

Board of Examiners

Members of Jury	Name & Surname	Rank	Institution
President	Dr. MOULAY Hacene	MCB	University of Tiaret
Supervisor	Dr. Khaled BELARBI	MCA	University of Tiaret
Examiner	Dr. BENAMOR Youcef	MCA	University of Tiaret

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Dedication

For my beloved Sister Khadija

To my parents

To my Brothers and Sisters and

their family members

To all my friends

Hinda

Dedication

All praise is for ALLAH the Almighty Who has given me guidance, strength, and patience to complete my studies along with this work and to whom I am grateful for the infinite blessings.

To my beloved parents. Thank you for believing in me and offering me unconditional love and support. I hope I can always make you proud, to my beloved siblings for their encouragement, Last but not least, to every student in my department, you are the best!

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List of abbreviation:

AI: Artificial Intelligence	1
2. HE: Higher Education	2
3. EFL: English Foreign Language	3
4. FLA: Foreign Language Acquisition	4
4. ASL: American Sign Language	8
5. BSL: British Sign Language	8
6. ML: Machine Learning	12
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General Introduction

1. General Introduction:

In the intricate tapestry of human existence, few phenomena are as fundamental and complex as language. We convey thoughts, emotions, and ideas, shaping our interactions and understanding of the world through the vessel. Over millennia, humans have developed an astonishing array of languages, each a testament to the diversity and ingenuity of our species. However, as we delve deeper into the digital age, a new player has entered this ancient dance: Artificial Intelligence (AI). The emergence of (AI) created a convergence of many elements namely human language and dynamic interaction and (AI).

The research at hand is divided into three chapters, where each one meets the standards of the determined objectives.

The First Chapter is merely theoretical incorporating a comprehensive overview of the existing literature about Human Language, Artificial Intelligence, and Human-AI Interactionism. The Second Chapter concerned with the description of the methodology used for the fulfilment of this study. The Third Chapter is the practical side of the study, its findings, and the discussion of the results. It reveals the studies limitations, its implications, in addition to some suggestions and recommendations for further studies.

1.1. Problem Statement and Research Questions:

Artificial Intelligent (AI) has been increasingly propagated as having strategic value for education. It enables English teachers and learners to reach as many data as possible in a short time, using its multiple tools namely Chat GPT, Siri, Grammarly, QuillBot...etc. These tools perform tasks that usually require human intelligence, such as understanding natural language, recognizing images, making decisions, and learning from data. In fact, AI can interact and help humans perform at higher levels; it is emerging as the next disruptive innovation. The correlation between the human language and (AI) creates what is lately known as “Human-AI Interaction” that is spread world widely. In short, the use of (AI) tools is gaining a great importance and it is attracting attention as a new phenomenon in the English language teaching and learning process, which makes it a worthy topic of a deep investigation.

Regarding the previous studies in AI, many of them have included three essential perspectives of AI in knowledge processing: (a) knowledge representation, (b) Knowledge

General Introduction

obtaining, and(c) knowledge derivation. This review will focus on the techniques and the tools that have recently been integrated in education. While in higher education (HE) the use of AI has risen quickly in the last ten years as examples of that we mention: *Exploring the impact of AI on teaching and learning in higher education*. Popenici, S. A, and Kerr,S (2017) / *Higher-performance medicine: the convergence of human and the artificial Intelligence*. Topol, E. J. (2019) and others.

In light of all that is mentioned above, this study attempts to find answers to following questions:

I) The Main Questions:

- *What features does the interaction of human language and Artificial Intelligent (AI) bring to English language Teaching-learning process?*

II) The Subordinate Questions:

- How does English language learner make use of the Human-AI interaction to develop his four language skills?
- What perspectives do the English instructors have about AI tools use?
- And what impact does this use have on their students?

1.2. Hypothesis:

Drawn upon the inquiries of this research, we have formulated the following set of hypotheses:

I) The Main Hypothesis:

- *We hypothesis that the interaction of the human language and AI enabled English language users to communicate, learn, perform and solve problems.*

II) The Subordinate Hypotheses:

- We assume that the Human-AI interaction has improved the teaching and learning process by providing learners personal learning experience and engagement, offering them immediate data and feedback.

- English instructors perceive AI tools as beneficial for enhancing learning and providing efficient feedback.
- The use of AI leads to some challenges such as reducing human interaction, over-reliance on technology and the decrease of critical thinking in addition to the potential inequities to technology.

1.3. Significance of the Study:

This study is significant for English Foreign Language (EFL) teachers and students because it intends to help students overcome their weakness in acquiring the four skills in the English language, build up their self-confidence, gaining a reliable knowledge in his educational, professional and social life. It also serves as a guide for instructors to comprehend student's anxiety and weakness and create motivating classroom atmosphere to alleviate and enhance their performance in English language learning. AI tools offer effective learning experiences and lessen the burdens of the teaching and learning processes for both teachers and students.

1.4. Objectives of the study: This study aims at:

- Understanding the mechanisms of AI language processing and determine how AI tools influence the language learning process.
- Exploring the relationship between human language and AI tools, focusing on how AI processes language and impacts learning and communication.
- Seeking to assess the effectiveness of AI in educational settings, examine user perceptions, and address ethical and privacy concerns.
- Identifying specific benefits and challenges faced by learners using AI tools.
- Providing valuable insight for various stakeholders on the evolving role of AI in language interaction

1.5. Research Design:

The curiosity to fulfill the aforementioned objectives pushes us to design a comprehensive interpretive case study targeting both students and teachers in the English department at Ibn Khaldoun University of Tiaret. The undertaking of such a subject requires profound insight, quantitative and qualitative data are collected from different sources relying on a pair of research instruments, a questionnaire and an interview. The former is meant to

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collect statistical data from a wide range of students, whereas the latter fits for describing and eliciting teachers' perspectives as regards the topic. The result will be analyzed and interpreted for stronger evidence to successfully respond to the research inquiries.

1.6. Research Tools:

In order to efficiently carry out the present study, it is necessary to provide balanced instrumentation to EFL students and teachers. The first instrument adopted is a questionnaire, which is administered to students of the English department (License and Master) from Ibn Khaldoun University with a total number of 30 participants who were asked to answer different questions concerning the subject under investigation. Besides, a structured interview is implemented to find out whether instructors are familiarized with this phenomenon or not, and the possible strategies they may adapt to diminish Foreign Language Acquisition (FLA) in EFL classrooms.

1.7. The structure of the research:

The research at hands is divided into three chapters, where each one meets the standards of the previously determined objectives. The first chapter entitled: "Literature Review" is merely theoretical incorporating a comprehensive overview of the existing literature about the theories of Human Language, Artificial Intelligence, and Human-AI Interaction. The second chapter explains the methodology followed to accomplish this investigation. It deals with the research design and methodology including the sampling and the research informants, which are represented in the formants as well as the research instruments. The third chapter comprises the procedure of collection followed by their analysis, interpretation, and the reliance of the findings that seeks to answer the research questions by confirming or disconfirming the research hypothesis. Then, it includes with the research main results. Some suggestions and omnibus recommendations are provided for the sake of further research avenues.

1.8. Delimitation of the Study:

The study clarifies the interaction between human language and artificial intelligence tools. First students of English department both License and Master at Ibn Khaldoun University as a sample. Therefore, it develops exclusively long the aforementioned lines. We mindfully purport to study a sample of English students at the department of English in the

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wilaya of Tiaret and its surroundings. Hence, the areas have specific characteristics as regards weather, landscape, socio-economic status, linguistic properties, etc. All the factors mentioned above undoubtedly affect one way or another both the teachers' and students' perceptions, self-awareness, beliefs and attitudes.

Chapter One

Literature Review

“I believe in the fundamental interconnectedness of all things.”

Douglas Adams, Dirk Gently’s Holistic Detective Agency.

Introduction:

The intersection of human language and AI represents a frontier of exploration, where technology endeavors to comprehend and communicate in ways that eerily mimic our own linguistic capabilities, from chat bots to language models. AI systems are increasingly adopting at processing, generating, and understanding human language, blurring the lines between the artificial and organic. As AI becomes more integrated into our daily lives, from virtual assistants guiding us through our routines to language translation devices breaking down communication barriers, it prompts us to reassess the nature of human connection.

1. Historical Background of Language:

“It is a truism, unhappily often ignored, that no understanding of the present is complete without understanding the past.”

Dialect and Language Variation. (2014). Royaume-Uni: Elsevier Science.

As is evident from the discussion above, human life in its present form would be impossible and inconceivable without the use of language. People have long recognized the force and significance of language. Naming _applying a word to pick out and refer to a fellow human being, an animal, an object, or a class of such beings or objects_ is only one part of the use of language, but it is an essential and prominent part. A divine aura pervades early accounts of the origin of writing the ancient Greeks adapted a variety of the Phoenician consonantal script so as to represent the distinctive consonant and vowel sounds of Greek, thus producing the first alphabet such as is known today, was linked with the mythological figure Cadmus. By a traditional account, the Arabic alphabet, together with the language itself was given to Adam by God. The later tradition of The Tower of Babel, (Genesis 11:1_9) exemplifies three aspects of early thought about language:

(1) divine interest in and control over its use and development, (2) a recognition of the power it gives to humans in relation to their environment and (3) an explanation of linguistic diversity, of the fact that people in adjacent communities speak

different and mutually unintelligible languages, together with a survey of the various speech communities of the world known at the time to the Hebrew people.

The origin is seen in the late 18th-century essay of the German philosopher Johann Gottfried Von Herder, “*Essay on the Origin of Language*”, and in numerous other treatments. It lies forever beyond the reach of science in that spoken language in some form is almost certainly coeval with *Homo sapiens*. The Greek historian Herodotus told a story in which King Psamtik-I of Egypt (reigned 664–610 BCE) caused a child to be brought up without ever hearing a word spoken in his presence. On one occasion it ran up to its guardian as he brought it some bread, calling out “*bekos, bekos*”; this, being said to be the Phrygian word for bread, proved that Phrygian was the oldest language. The naiveté and absurdity of such an account have not prevented the repetition of this experiment elsewhere at other times.

2. Definition of Language:

Human language is a sophisticated and intricate system of communication used by humans to express thoughts, ideas, emotions, and intentions, all languages share common features and are capable of expressing the full range of human experiences. Many scholars and linguists have defined language in different ways, each one according to his area of inquiry. Henry Sweet, an English phonetician and language scholar, stated: “*Language is the expression of thoughts by means of speech-sounds. In other words, every sentence or word by which we express our ideas.*” Sweet, H. (1900).

The American linguists Bernard Bloch and George L. Trager formulated the following definition: “*A language is a system of arbitrary vocal symbols by means of which a social group cooperates.*” Bloch, B., Trager, G. L. (1985).

Noam Chomsky, a prominent linguist, described language as: “*a system of communication using sounds or symbols that enables us to express our feelings, thoughts, ideas, and experiences.*” Chomsky, N. (2002).

Edward Sapir, an American anthropologist-linguist, characterized language as “*a purely human and non-instinctive method of communicating ideas, emotions, and desires by means of voluntarily produced symbols.*” Sapir, E. (2014).

Benjamin Lee Whorf, influenced by Sapir, defined language as:” *a social art shared across communities, consisting of a system of conventional signals used for communication*” Whorf, B. L. (1956).

Roman Jakobson, a Russian-American linguist, characterized language as: “*a system of signs for encoding and decoding messages according to social conventions.*” (Jakobson, R. (1960).

3. Types of Language:

Language is a fundamental tool of human communication and expression, taking on diverse forms and functions across different contexts. Here are some key types of language:

3.1. Natural Language: Natural language has an intimate connection to the nature of minds, ideas, feelings, and other nebulous entities attributed to minds are often expressed and represented in natural language. (Mondal, P. (2017). Natural languages vary widely across cultures and regions, each with its vocabulary, grammar, syntax, and phonology. Examples include English, Spanish, Mandarin, Arabic, and thousands of others spoken worldwide.

3.2. Sign Language: is a language of movement and space, of the hands and of the eyes, of abstract communication as well as iconic story-telling, but most important of all , it is the language of the deaf community. Kyle, J. G., Kyle, J., Woll, B. (1988).

Sign languages have their own grammar, syntax, and vocabulary, distinct from spoken languages. They vary across different countries and regions, with examples including American Sign Language (ASL), British Sign Language (BSL), and Auslan (Australian Sign Language), and they play a significant role in Deaf culture and identity.

3.3. Body Language: is unique non-verbal channel of communication, by which we convey information, or express ourselves through conscious or subconscious gestures, body movements, and facial expressions. Kumar, V. (2012). Understanding and interpreting body language effectively can enhance communication skills, empathy, and interpersonal relationships.

3.4. Ancient Languages: are languages that were spoken in antiquity but are no longer in common use today. These languages have historical significance and are often

studied for their cultural, religious, or scholarly value. Examples of ancient languages include Latin, Ancient Greek, Sanskrit, Old Egyptian, Akkadian, and Classical Chinese, among others. They are typically preserved in ancient texts, manuscripts, inscriptions, and artifacts, allowing scholars to decipher and interpret their meanings.

3.5. Programming Languages: are the medium of expression in the art of computer programming. An ideal programming language will make it easy for programmers to write programs succinctly and clearly. Because programs are meant to be understood, modified, and maintained over their lifetime. Mitchell, J. C. (2002). Each programming language has its own syntax, semantics, and features tailored to different programming paradigms and application domains.

3.6. Artificial Language: Artificial languages are intentionally created languages, often with specific purposes or applications in mind. They are designed rather than having evolved naturally, and they can serve a variety of functions, including facilitating communication, improving efficiency in certain domains, or exploring linguistic principles. Artificial languages can be created for various reasons, such as for international communication, scientific research, fictional storytelling, or technical specifications.

4. Language Variations: Language variety refers to the range of different forms that a language can take based on various factors such as geography, social status, cultural background, historical influences, and individual characteristics. Here are some common types of language variety:

4.1. Dialect: is a substandard, low-status, often rustic form of language, generally associated with the peasantry, the working class, or other groups lacking in prestige. Dialect is also a term which is often applied to forms of language, particularly those spoken in more isolated parts of the world, which have no written form. Chambers, J. K., Trudgill, P. (1998).

For instance, we recognize different dialects of English (such as Southern British English, Northern British English, Scottish English, among others, each with further subcategories).

4.2. Jargon: refers to specialized terminology or language used by particular groups, professions, or communities. It often consists of technical terms, abbreviations, or expressions

that may be incomprehensible to those outside of the specific field or context. It is the complex language used by experts in a certain discipline or field. This language often helps experts communicate with clarity and precisions. Nordquist, Richard. (2024, May 13).

4.3. Pidgins and Creoles: to turn first to pidgins, it is generally agreed that in essence these represent speech-forms which do not have native speakers, and are therefore primarily used as a means of communication among people who do not share a common language. Creole can be defined as a language that has come to existence at a point in time that can be established fairly precisely. Non-creole languages are assumed to have emerged gradually. Pays-Bas: J. Benjamins.(1995).

2. Origin of Artificial Intelligence:

Refers to the simulation of human intelligence in machines that are programmed to think, learn, and problem-solve like humans. It encompasses a range of technologies and techniques that enable computers to perform tasks that typically require human intelligence.

2.1. History of Artificial Intelligence AI:

The idea of AI first developed in 1945 when Vannevar Bush, one of the early founders, proposed a system to increase human knowledge and understanding. He was followed by Alan Turing, who in 1950 wrote an article on the capabilities of machines to simulate human beings and their ability to perform intelligent actions such as playing chess.¹ The term artificial intelligence (AI) evolved a few years later and is attributed to John McCarthy, a computer scientist and researcher in the field of cognitive sciences, who organized the first academic conference on the subject in 1956, and to Marvin Lee Minsky, who was trained as a mathematician and was involved in research, inventions, and many developments in the field. It was Minsky who coined the popular definition of AI, noting that “AI is the science of making machines do things that would require intelligence if done by men.

In the past decade, due to progress in computer science research, the development of hardware and software in computing communication, as well as cloud computing and big data, AI has significantly progressed, Most common applications in AI belong to a subdomain called machine learning, which includes statistical algorithms that seek to imitate human

cognitive tasks by analyzing large amounts of data and creating rules about them which are used in many contemporary systems and enable actions such as image identification and autonomous driving.

2.2. Proposal for a Common Definition on Artificial Intelligence AI:

Artificial Intelligence (AI) in particular-broadly defined- is concerned with intelligent behaviour in artefacts. Intelligent behaviour, in turn, involves perception, reasoning, learning, communicating, and acting in complex environments.

Marvin Lee Minsky as formulated one of the known definitions of AI, which has already been mentioned,: *“the science of making machines do things that would require intelligence if done by men.”* Minsky, M. L. (1968).

Patrick Winston defines AI as: *“Artificial Intelligence is the study of ideas which enable computers to do the things that make people seem intelligent”* Fry, C. (1980).

Another definition is: *“An area of study in the field of computer science. Artificial Intelligence is concerned with the development of computers able to engage in human-like thought processes such as learning, reasoning, and self-correction.”* ARTIFICIAL INTELLIGENCE. (2009).

Darrell West and John Allen have claimed that *“artificial intelligence is a wide-ranging tool that enables people to rethink how we integrate information, analyze data, and use the resulting insights to improve decision making.”* They believe that even though there is no uniform accepted definition, it is correct to refer to AI as “machines that respond to stimulation consistent with traditional responses from humans, given the human capacity for contemplation, judgment and intention.

2.3. The Development of AI:

The development of AI can be divided into three distinct waves, based on the development of AI’s capabilities. One of the world’s leading bodies in the development of AI for security purposes is The Defence Advanced Research Projects Agency (DARPA) of the

US Department of Defence. characterized by the Notional Intelligence Scale in which the following four capabilities are measured, similar to the dimensions of human intelligence:

- 1. Perceiving: the ability to discern global events
- 2. Learning: the ability to learn things and adapt to various situations
- 3. Abstracting: the ability to take knowledge discovered at a certain level and to deduce from it or apply it to another level
- 4. Reasoning: the ability to explain logically, or to make logical decisions

The first wave of AI was based on “handcrafted knowledge,” in which experts collected existing knowledge on a particular subject and characterized it within the framework of rules that could apply to a computer, which in turn could learn their implications. This generation of AI includes logistics software for planning operations such as shipments; software for calculating taxes; and software that could play chess games against people.

The second wave is referred to as “statistical learning” characterized by categorization. In this wave, unlike the previous one, the experts taught the computers statistical models for various problems, instead of fixed rules and then trained the algorithms on many examples, until they reached the desired level of accuracy. The products of this wave enabled voice recognition or facial recognition on mobile phones and “bots” that provide customer service through internet chat correspondence. According to DARPA, the second wave of AI could categorize things according to nuances and predictive ability but had minimal abilities for logical reasoning.

This generation of AI includes systems for analysis or translation of text; Personal assistant software in smart phones; autonomous driving. However, it does not have the ability to understand the rules or the causality behind the actions it performs, so it is subject to error or manipulation. According to DARPA, the second wave of AI could categorize things according to nuances and predictive ability but lacked contextual abilities and had minimal abilities for logical reasoning.

2.4. Fields of Artificial Intelligence:

There is a broad set of techniques in the domain of artificial intelligence; here are some major fields of AI in deep:

2.4.1. Machine Learning (ML): Machine learning allows algorithms to learn from information and develop solutions independently, by using statistics-based algorithms that learn from large databases to recreate human cognitive. *“The use of algorithms to manipulate data is the centrepiece of machine Learning.”* Mueller, J. P., Massaron, L. (2016). It also allows algorithms to learn through repetitive training and to create results that improve according to the scope of training and the experience of the algorithm.

2.4.2. Deep Learning (DL): *“Is a class of machine learning algorithms that use multiple layers of computational units where each layer learns its own representation of the input data. These representations are combined by later layers in a hierarchical fashion.”* Ekman, M. (2021). Which uses artificial neural networks. These are algorithms that are inspired by the behaviour of the neural network in the human brain. DL has capabilities in the following subfields:

2.4.2.1. Image processing: this capability uses deep learning and enables software to recognize objects within a picture. The software divides the image into pixels and attaches values to each pixel according to its colour. It is demanded in diverse applications areas, such as: secured image and data communication, biomedical imaging, biometrics, and so on.

2.4.2.2. Computer vision: Computer vision differs from image-processing technologies in that it enables the software to identify objects in real time and respond to them similar to the ability of human vision but without the need to categorize them. Computer vision has enabled 3-Dvisualization, bone mass measuring, autonomous navigation, and control of irregular transactions.

2.4.2.3. Natural Language Processing (NLP): is a sub-domain of machine learning that enables the software to transcribe, translate, and perform actions according to the broad meanings of a spoken and written language and to produce new words and sentences that are meaningful to a person. A wide range of AI applications now use NLP technology, including Siri, Echo, and Google Assistant, and even security applications in the field of military intelligence.

2.5. Narrow AI vs. General AI Vs. Super AI:

AI is classified into three main types: Narrow AI, General AI, and Super AI. Each type of AI has its unique characteristics, capabilities, and limitations. Here is a brief explanation of differences between these three types of AI:

2.5.1. Narrow AI: Narrow AI, also known as weak AI, refers to AI that is designed to perform a specific task or a limited range of tasks. It is the most common type of AI and is widely used in various applications such as facial recognition, speech recognition, image recognition, natural language processing, and recommendation systems.

2.5.2. General AI: General AI, also known as strong AI, refers to AI that is designed to perform any intellectual task that a human can do. It is a theoretical form of AI that is not yet possible to achieve. General AI would be able to reason, learn, and understand complex concepts, just like humans. This would open up new possibilities for AI applications in fields such as healthcare, education, and the arts. Here are a few examples of General AI:

2.5.2.1. Alpha Go: A computer program developed by Google's DeepMind that is capable of playing the board game Go at a professional level.

2.5.2.2. Siri: stands for 'Speech Interpretation and Recognition Interface. An AI-powered personal assistant developed by Apple that can answer questions, make recommendations, and perform tasks such as setting reminders and sending messages.

2.5.2.3. ChatGPT: stands for Chat Generative Pre-Trained Transformer. A natural language processing tool driven by AI technology that allows having human-like conversations and much more. The language model can answer questions, and assist you with tasks such as composing emails, essays, and code. However, the development of General AI could have significant ethical implications, as it could potentially surpass human intelligence and become a threat to humanity.

2.5.3. Super AI: Super AI refers to AI that is capable of surpassing human intelligence in all areas. It is a hypothetical form of AI that is not yet possible to achieve. Super AI would be capable of solving complex problems that are beyond human capabilities and would be able to learn and adapt at a rate that far exceeds human intelligence. The development of Super AI is the ultimate goal of AI research

3.1. Interactionism:

In micro-sociology, *“The term Symbolic Interactionism has come to use as a label for a relatively distinctive approach to the study of human group life and human conduct.”* Blumer, H. (1986). In other words, it studies the ways in which individuals shape, and are shaped by, society through their interactions. Through this perspective, one may categorise human behaviour by three parts: 'Trait' refers to the extent to which [personality](#) directly affects behaviour, 'situation' takes into account the extent to which all different people will provide basically the same response to a given situation; and 'interaction' involves the ways in which the same situation affects individual people differently.

3.1.1 Human-AI Interaction:

“Human-AI interaction studies and designs how humans and artificial intelligence (AI) systems communicate and collaborate.” Interaction Design Foundation – IxDF. (2023, November 21). Human-AI interaction researchers and practitioners use multiple tools and methods such as user research, prototyping, testing, and evaluation to create and improve human-centered AI systems. The intention is to amplify and augment rather than displace human abilities. Human-AI interaction aims to create AI systems that are trustworthy, ethical, and beneficial for humans.

3.2. History of Human-AI Interaction:

The history of human-AI interaction starts with AI itself. Alan Turing, the founder of computer science and a pioneer of AI, proposed a method to evaluate whether a machine can exhibit intelligent behavior indistinguishable from a human. The method is called the Turing Test and is considered the birth of AI. Turing also envisioned machines that could learn, reason, and communicate with natural language.

During the 1950s and 1960s, pioneers in AI crafted the initial AI systems capable of tasks like chess-playing, theorem proving, and language translation. These systems relied on symbolic logic and rule-based reasoning, necessitating explicit instructions from human programmers. Nonetheless, they encountered challenges in handling uncertainty, ambiguity, and complexity, proving inadequate for addressing common sense or encountering novel scenarios.

In the 1970s and 1980s, AI researchers delved into alternative methodologies, including neural networks, fuzzy logic, genetic algorithms, and expert systems. These approaches sought to mirror human biological and cognitive functions, leveraging data and experience for learning. They facilitated smoother and more intuitive human-AI interactions, encompassing areas like speech recognition, computer vision, and natural language comprehension. Nevertheless, they grappled with issues of scalability, reliability, and explainability, frequently drawing criticism for being black boxes.

In the 1990s and 2000s, AI researchers witnessed notable strides in machine learning, particularly with the emergence of deep learning. This methodology involves the utilization of multiple layers of artificial neurons to discern intricate patterns and features from vast datasets. Deep learning revolutionized AI systems, achieving remarkable feats in tasks like image recognition, natural language generation, and game playing, often surpassing human capabilities in certain domains. It also paved the way for novel forms of human-AI interaction, such as conversational agents, recommender systems, and social robots. Nonetheless, the rise of deep learning brought new issues and hurdles, including concerns about data quality, privacy, security, bias, and ethics.

3.3. Types of Human- AI Interaction:

Human-AI interaction encompasses various forms through which humans and artificial intelligence systems engage. Some prominent types include:

3.3.1. User Interfaces (UI): *“is defined as a systematic approach to the design, implementation, and evaluation of users interfaces that cater to the requirements of the broadcast possible user population.”* User Interfaces for All: Concepts, Methods, and Tools. (2001). user interface (UI) serves as the arena where humans and machines engage. The primary aim is to facilitate efficient operation and control of the machine from the human perspective, while the machine, in turn, provides feedback to enhance operators' decision-making.

3.3.2. Conversational Agents: *“are agents that can engage in natural conversational interactions with humans.”* McTear, M. (2022). A conversational agent is a type of artificial intelligence (AI) software that can simulate a conversation (or a chat) with a user in natural language through messaging applications, websites, mobile apps, or through the telephone.

Conversational agents are increasingly being used for various purposes such as customer service, request routing, information gathering, and in the healthcare and banking sectors for tasks such as symptom checking and online transactions.

3.3.3 Social Robots: *“is human-made entities that interact with humans in a humanlike way” Research Handbook on Artificial Intelligence and Communication. (2023).* e;i are artificial intelligence platforms, paired with sensors, cameras, microphones and other technology, like computer vision, so they can better interact and engage with humans or other robots. Social robots come in many different shapes and sizes, their aesthetic design is an important element to foster human engagement and interaction, but like humans, what often matters most is what is on the inside.

3.3.4. Human Action Recognition (HAR): Human action recognition is an important research direction of computer vision related to behavioural analysis. *“The use of environmental and acoustic sensors allows inferring the activity from the interaction of the user with the environment and the objects located in it.” Motion Tracking and Gesture Recognition. (2017).* It should be said that the research methods of action recognition cover almost all theories and technologies in the field of computer vision, such as pattern recognition, machine learning, artificial intelligence, image graphics, and statistics. Human posture recognition is the extraction, classification, and identification of human posture features and natural language description.

3.4. The Most Productivity Tools of Artificial Intelligence (AI):

It is clear that in the years to come, Artificial Intelligence is expected to assist in all major developments and completely change the way things are done today. It is likely to be an inseparable helping hand in all the major industries. These are some notable tools in AI:

3.4.1. ChatGPT4: ChatGPT 4, created by OpenAI, is a powerful chatbot. It’s the next generation of ChatGPT and is renowned for its capability to produce high-quality text in response to various prompts and questions, making it a valuable conversational AI tool. It is also capable of translating languages, writing different kinds of creative content, and answering your questions in an informative way.

3.4.2. Google Bard: a conversational [generative artificial intelligence](#) chatbot and was developed by Google. Google Bard can chat with people and hold interactive conversations. It uses advanced AI technologies, these technologies are used to invent new ways of engaging with different types of information, like text, images, videos, and audio, this enhances the tool's capabilities.

3.4.3. Slides AI: Slides AI referred to as a top [AI PowerPoint generator tool](#), is a software or platform designed to assist users in creating and enhancing presentations using artificial intelligence (AI) capabilities. This content can include text, images, charts, and even layout suggestions. Users can input their presentation topic or key points, and the AI generates slides accordingly.

3.4.4. Synthesia: In order to create videos from written information, Synthesia stands out as a top [artificial intelligence \(AI\) video generator tool](#). This tool offers a rapid and user-friendly approach to creating high-quality videos. It caters to businesses seeking training or marketing materials, educational institutions producing instructional content, and individuals creating videos for personal or professional use.

3.4.5. Alli AI: Alli AI stands out as a top-notch [AI tool for SEO](#) as it makes SEO tasks easier for companies. For busy marketers, finding tools that simplify their work is crucial. With this tool, you can also test different keywords on your pages and automatically keep the one that works best after the testing is done. With this tool, tracking and reporting can easily be done by accurately measuring the effectiveness of your SEO efforts and making informed decisions.

3.4.6. Word tune: is an AI powered reading and writing companion capable of fixing grammatical errors, understanding context and meaning, suggesting paraphrases or alternative writing tones, and generating written text based on context.

3.4.7. Siri: is the digital assistant that is part of , [iPadOS](#), [watchOS](#), [macOS](#), [tvOS](#), [audioOS](#), and [visionOS](#) operating systems. It uses voice queries, gesture based control, focus tracking and a [natural-language user interface](#) to answer questions, make recommendations, and perform actions by delegating requests to a set of [Internet](#) services. With continued use, it adapts to users' individual language usages, searches, and preferences, returning individualized results.

3.4.8. Aria: The formal name for Aria is “Accessible Rich Internet Applications” is a technical specification published by the World Wide Web Consortium; ARIA is a set of attributes you can add to HTML elements that define ways to make web content and applications accessible to users with disabilities who use assistive technologies (AT). When accessibility issues cannot be managed with native HTML, ARIA can help bridge those gaps.

3.5. Bridging Linguistics and AI:

The intersection of linguistics and artificial intelligence represents a frontier of exploration where language, meets the computational prowess of AI. This confluence is not merely a juxtaposition of a humanistic discipline with a technological one; it is an integrative endeavour that enriches our understanding of human communication. Linguistics, with its deep-rooted analysis of language structure, semantics, and phonetics, provides a framework for AI to interpret and generate human language. In the broader context, this fusion of linguistics and AI is reshaping our societal dynamics. It is transforming how we interact with technology, how we access information, and even how we perceive the boundaries between human intelligence and artificial intellect.

Moreover, AI tools incorporate complex linguistic models to facilitate language acquisition, offering insights into language learning processes that were previously unattainable. As we delve deeper into this relationship, we uncover the transformative potential of AI in linguistics, promising unprecedented advancements in how we understand, use, and teach language in an increasingly digital world.

The extent to which humans rely on AI tools for interaction varies depending on several factors such as complexity of tasks, in scenarios where tasks require processing large volumes of data, performing repetitive tasks, or analyzing complex patterns, AI tools can significantly enhance efficiency and accuracy.

Conclusion:

In conclusion, the dynamic interplay between human language, artificial intelligence (AI), and human-AI interactionism underscores the evolving landscape of communication and technology. As humans continue to leverage language as a primary means of expression and interaction, AI technologies serve as powerful tools augmenting these capabilities. However,

the integration of AI into human-AI interaction introduces both opportunities and challenges. On one hand, AI facilitates personalized, efficient, and accessible communication channels, spanning customer service, healthcare, education, and beyond. On the other hand, concerns regarding privacy, bias, transparency, and ethical implications underscore the need for responsible AI development and deployment.

Chapter Two

Methodology

“Research is an ongoing activity which is never totally completed because each piece of research raises additional questions for more research.”

Seliger H.W. & Shohamy E. (2000: 2)

Introduction:

The present study investigates the interaction between Human Language and Artificial Intelligence (AI), in the form of data and data analysis, which are presented under the form of charts, graphs, and statistic figures. They also state the facts as they are observed and pave the way to possible interpretations. After collecting the data thanks to the mixed methods of investigation qualitative and quantitative, including the questionnaire, and the interview and in order to verify the research hypotheses as answers to the suggested research questions, an investigation was set to study the data results given by both students and teachers.

1. Research Design:

The curiosity to fulfil the aforementioned objectives pushes us to design a comprehensive interpretive case study targeting both students and teachers in the English department at Ibn Khaldoun University of Tiaret. The undertaking of such a subject requires profound insight, quantitative and qualitative data are collected from different sources relying on a pair of research instruments, a questionnaire and an interview. The former is meant to collect statistical data from a wide range of students, whereas the latter fits for describing and eliciting teachers' perspectives as regards the topic. The result will be analysed and interpreted for stronger evidence to successfully respond to the research inquiries.

2. Case Study:

This case study deals with the dynamic interaction between Artificial Intelligence (AI) and Human language through exploring the use of AI tools among students and the perspectives of English teachers regarding this practice. The study aims to understand the prevalence, motivations, and potential impacts of AI use in the student essay writing process. This case study employed a mixed-methods approach in order to deduce reliable data. The students questionnaire shed light on AI writing assistant usage (type of tool, frequency of use, features valued), perceived impact on essay quality, writing skills, confidence, and motivation. Besides, a well-structured interview was conducted with a sample of English language instructors. Topics covered included essay types assigned,

awareness of student AI use, perceived prevalence, potential benefits and drawbacks, suspected misuse, approaches to addressing AI use, and the impact on learning and teaching.

3. Research Methods:

This research employs analytical descriptive method and mixed-methods encompassing both Quantitative and Qualitative approaches, it facilitates an analysis that is both broad in its coverage of student and teacher populations and deep in its exploration of individual experiences and perceptions. *“Mixed methods have great flexibility and are adaptable to many study designs, such as observational studies and randomized trials, to elucidate more information than can be obtained in only quantitative research.”* Creswell JW, Plano Clark VL. 2011. Therefore, the use of such a research technique is designed to achieve a desired validity and reliability by providing a better overview of their study environment.

3.1. Analytical-Descriptive Methods:

This study was conducted through an analytical description to human language and AI to reach out the following objectives:

a. To explore how human language and AI systems influence each other. This includes examining how AI-driven language models adapt to and modify human linguistic patterns.

b. To assess the ethical and societal impacts of AI language models. This involves understanding issues like bias, fairness, and the potential for AI to shape or reinforce social norms and behaviours.

c. To develop more effective and natural modes of communication between humans and AI. This could include making AI interactions more intuitive, responsive, and contextually aware.

d. To apply findings in educational contexts, improving language learning tools, and practical applications like translation services, content creation, and customer service.

e. To integrate knowledge from linguistics, cognitive science, computer science, and other fields to create a comprehensive understanding of the interaction between human language and AI.

3.2. Mixed Methods (Quantitative-Qualitative Method)

3.2.1. Quantitative Method:

The aim of this approach is to answer questions like *who? How much? What? When?* It is merely conducted by utilizing and analyzing numerical data via specific statistical techniques.

Leedy and Omord (2001) stated that “ *Quantitative research involves the collection of data so that information can be quantified and subjected to statistical treatment in order to support or refute alternative knowledge claims*” (as cited in Apuke, 2017, p. 41). Quantitative research method helps the researcher:

- a) Test hypotheses, look at cause and effect, and make predictions
- b) Randomly select larger samples
- c) Specific variables can be easily tested;
- d) Statistically report the findings by establishing their correlations and significance.

3.2.2. Qualitative Method:

The qualitative approach focuses on the quality of things, their nature, how they are like, and how they can be described. Schunk (2012) stated that:” *qualitative approach is characterized by “intensive study, descriptions of events, and interpretation of meanings*” (p. 12). It often involves views or internal worlds of the participants in addition to data gathered by interviews, observations, focus groups, etc. The data collected via these tools, often take the form of words, narratives, and descriptions that are not easy to encrypt and analyse. Overall, the qualitative approach tries to preserve the voice and perspectives of the participants and it is good for:

- 1) Flexibility where the data can be adapted as new ideas or patterns emerge.
- 2) Meaningful insights in which detailed and thorough descriptions of the participants can be used to test the hypotheses from alternative angles.
- 3) Generation of new ideas where the respondents’ open-ended responses can help researchers unveil novel problems that they would not have thought of otherwise.

4. Population Sampling:

The sample selected for the fulfilment of this study is ‘students from English

department both licence and master at Tiaret university of Ibn Khaldoun ‘. The reason behind opting this particular population is the fact that the most of its members use AI tools in their study fields, especially writing. The sample was randomly chosen, where each member of the population had a fair chance to be part of the investigation. The sample size limited is to only 30 students out of all the rest of students at the department of English language.

5. Research Tools:

For the sake of scientific validity, the combination of two reseach methods, namely a questionnaire and an interview, is considered the most appropriate for the acquisition of data sources, providing for the extension and development of the research result. In other words, the results of these research instruments give better proof corroborating evidence. As a result, a questionnaire was directed to 30 students from the English department at Ibn Khaldoun University Tiaret. It should be underlined that the question-items primarily focus on the impact of students’ use of AI tools on their writing skill. In addition, a guided interview consisted of multiple questions has been conducted with English teachers at the same department. The fundamental purpose of this option is to guarantee scientific validity and reliability.

5.1. Questionnaire:

5.1.1. Students’ Questionnaire Description:

Questionnaires are a fundamental research tool used widely across various disciplines to collect quantitative data from a large number of respondents efficiently. They typically consist of a series of questions, open-ended and closed-ended, designed to gather information about specific topics. The primary advantage of questionnaires is their ability to facilitate the analysis of data from a substantial sample size, allowing for generalizations about a population (Bryman, 2016).

In this research, our questionnaire is administered to 28 students of both levels (licence and master) devoted to students’ use of AI writing assistants in their essay writing (English faculty), it is meant to give support to the hypothesis that ‘ *AI tools may facilitate many tasks for users, and replace human capacities in several cases among them language production.*’ Some points are taken into account in the construction of this questionnaire to be efficient: simplicity, clarity, respondent level, length (not very long), and coherence.

5.1.2. Students' Questionnaire Objectives:

It has several advantages that can help us to fulfil and meet our study requirements and objectives, in terms that:

- 1) It facilitates the data collection process for researchers.
- 2) Respondents feel more secured when answering, as their identities are completely anonymous.
- 3) The ability to reach a large number of respondents at a relatively low cost.

5.1.3. Students' Questionnaire Structure :

The questionnaire comprises eighties (18) question items. The latter are arranged into four sections; a three-part introductory segment focuses on the background information of English students including gender, age and level of the English language. The second segment is meant to disclose respondents' reflections and attitudes towards the main variable of our enquiry that is use and effectiveness of AI in students' writing skill. The third segment consists of five questions that were meant to reflect on students' reliance and dependence on AI writing assistants.

5.2. Interview:

5.2.1. Teachers' Interview Description:

Interviews are employed to collect qualitative data, providing deeper insight into the participants' attitudes, perspectives, and experiences. They can be structured, semi-structured, or unstructured, depending on the flexibility needed to explore the research questions (Kvale, 2007).

Our interview which is in the form of written questions collected from 12 teachers in the department of English to confirm or infirm the previous hypothesis mentioned (see questionnaire). The corpus of this study is to understand teachers' perceptions about the impact of AI writing assistants on their students. It provides valuable insights about the use of AI tools among students.

This corpus constitutes natural and authentic data from teachers' perceptions. This is to demonstrate teachers' opinions about the benefits and drawbacks of students using AI writing assistants for essay writing. Thus, authentic information are recommended as a

means of verification and analysis the language production. These questions are plain to every teacher' sight and mind who is even touched beside students than many other categories of people.

5.2.2. Teachers' Interview Objectives:

They help investigators to:

- 1) Provide an opportunity to the interviewers to bring new insights to the topic;
- 2) Allow them to open up about sensitive and critical issues;
- 4) Provide qualitative data to compare with previous and future data.

5.2.3. Teacher' Interview Structure:

The interview consists of fourteen (14) written questions directed to English teachers. The latter is divided into four sections, each with its own sets of questions; the background information section, which consists of two questions including teaching information and the types of essays that their students mostly write. The second section consists of six (6) questions, which deal with teachers' awareness of their students' use of AI writing assistants. The third section consist of four (4) questions to assess the impact of these assistants on the learning teaching process. The final section is formed of two (2) additional questions dealing with further comments regarding the topic.

Conclusion:

In summary, this chapter outlined the methodological approach undertaken to investigate the interaction between Human Language and Artificial Intelligence (AI) in the context of essay writing. By employing a mixed-methods approach, this study aims to provide a comprehensive understanding of this complex issue. The data collected through the questionnaires and interviews will be analyzed in Chapter Three, where we will explore the prevalence of AI use among students, motivations for using these tools, and teachers' perceptions of the potential benefits and drawbacks.

Chapter Three :

Empirical Study

1. Students Questionnaire

1. Section one: General Information.

1.1. Item One: Gender

The gender distribution of the survey participants reveals a significant skew towards females, with 82.1% (23 participants) identifying as female. The remaining participants (5, or 17.9%) identified as male. This imbalance is important to consider when interpreting the overall findings. Research suggests that communication styles and expectations regarding technology can differ between genders. A predominantly female sample may influence the overall perspective on AI interaction, potentially placing more emphasis on aspects like user-friendliness or collaborative communication.

Gender	Females	Males
Average (%)	82.1%	17.9%
Number	23	5

Table 01: Respondents' Gender

1.2. Item Two: Age

The age distribution of the survey participants leans heavily towards young adults, with 78.6% (22 participants) falling within the 19-23 age range. A smaller group (4 participants, 14.3%) follows this between the ages of 23-25, and a minimal representation (2 participants, 7.1%) above 25. This skew towards a younger demographic is a factor to consider when interpreting the overall results. The focus on young adults may influence the overall perspective on AI and human language interaction, as this age group is likely to have grown up with and be more accustomed to using new technologies.

Age	19-23	23-25	+25
Average (%)	78.6%	14.3%	7.1%
Number	22	4	2

Table 02: Respondents' Age

1.3. Item Three: Level of English study

English language proficiency varied amongst participants, with a majority of 71.4% (20 participants) identifying as intermediate learners. A smaller group with 25.0% (7 participants) considered themselves advanced, while only (one participant) with 3.6% classified himself as a beginner. This spread in English proficiency is a factor to consider when interpreting the findings. Those with a stronger grasp of English (intermediate and advanced) may have felt more comfortable and confident interacting with the AI system, potentially influencing their overall perception of the experience. The presence of a beginner-level participant, however, can offer valuable insights into the accessibility and user-friendliness of the AI's communication style.

Level of English	Beginner	Intermediate	Advanced
Average (%)	3.6%	71.4%	25%
Number	1	20	7

Table 03: Respondents' Level of English

2. Section Two: AI Writing Assistant Usage.

2.1. Question Item One: The most popular AI writing assistants used by the participants

The table shows the most popular AI writing assistants used by the survey participants. ChatGPT was the most frequently used assistant, with 17 out of 28 participants (60.71 %) reporting its use. QuillBot came in second with 7 users (25.0 %), followed by Grammarly with 4 users (14.29 %).

AI writing Assistants	ChatGPT	QuillBot	Grammarly	Others
Average (%)	60.71%	25%	14.29%	00%
Number	17	7	4	00

Table 04: Respondents' Mostly Used AI Writing Assistant.

2.2. Question Item Two: The frequency of using AI writing assistants for essay writing

The table shows how frequently participants use AI writing assistants for essay writing. None of them has chosen “Never” (00 participants or 00%). A significant portion (13, or 46.4%) reported using these tools "Sometimes". Another group (6 participants each, or 21.4% each) reported using them "Always" or "Often". A smaller group (3 participants, or 10.7%) reported using them "Rarely".

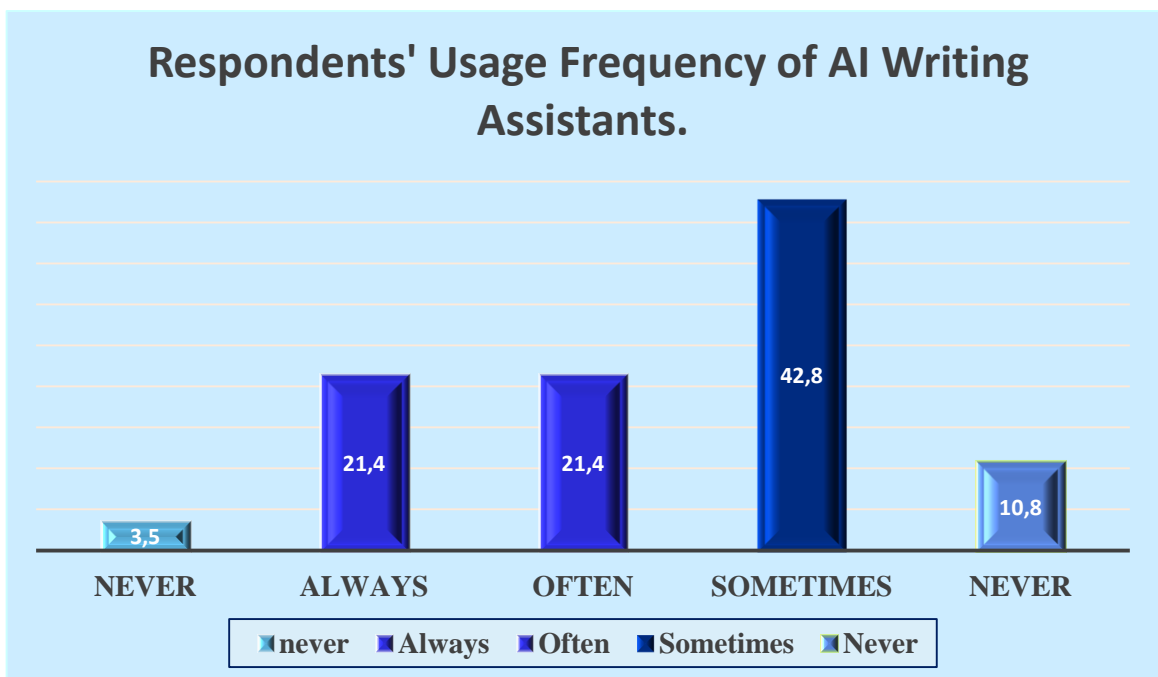


Figure 01: The frequency of using AI writing assistants for essay writing.

2.3. Question Item Three: The most frequently reported benefit of AI writing assistants

The most frequently reported benefit of AI writing assistants was "Suggesting ideas," with 17 participants (60.7%) indicating this as a helpful feature. Grammar correction came in second with 7 participants (25.0%). «Improving sentence structure" and "Other" benefits were mentioned by a smaller number of participants (3 with 10.7% and 1 with 3.5% respectively).

Benefits of AI Writing Assistants	Grammar Correction	Suggestion Ideas	Improving Sentence Structure	Others

Average (%)	25%	60.7%	10.7%	3.5%
Number	7	17	3	1

Table 05: Respondents' Reported Benefits of AI Writing Assistants Usage.

2.4. Question Item Four: Participants' opinions on how AI writing assistants enhance essay quality

Participants' opinions on how AI writing assistants enhance essay quality were divided. 19 participants (67.9%) agreed or strongly agreed that AI assistants improve essays. This included 6 participants (21.4%) who strongly agreed and 13 participants (46.4%) who agreed. However, a significant portion of participants (9, with 32.1%) remained neutral on the issue.

Agreement on AI Writing Assistant Improvement	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
Average (%)	21.4%	46.4%	32.1	00%	00%
Number	6	13	9	00	00

Table 06: Respondents' Agreement on AI Writing Assistant Improvement.

3. Section Three: Impact on Writing

3.1. Question Item One How AI writing assistants affect essay content:

The data shows a range of opinions on how AI writing assistants affect essay content. The most common response (14 participants, with 50.0%) indicated that AI assistants help with developing arguments. Clarifying ideas was another benefit reported by 9 participants (32.1%). A smaller group (3 participants, or 10.7%) mentioned meeting word count requirements, and 2 participants (7.1%) selected 'Other option'. Further analysis of the 'Other option' responses would be needed to understand the specific ways some assistants are perceived to influence essay content.

The Effect The Assistants on the Content of Essays	Clarify Ideas	Develop Arguments	Meet Word Count Requirement	Others
Average (%)	32.1%	50%	10.7%	7.1%
Number	9	14	3	2

Table 07: The Effect of AI Writing Assistant on the Content of Respondents' Essays

3.2. Question Item Two: Perceptions of AI Writing Assistant Impact on Writing Skills

Almost two-thirds (19 out of 28 participants, with 67.9%) reported that AI writing assistants have helped improve their writing skills. The remaining third (9 participants, or 32.1%) said that AI assistants did not improve their writing skills.

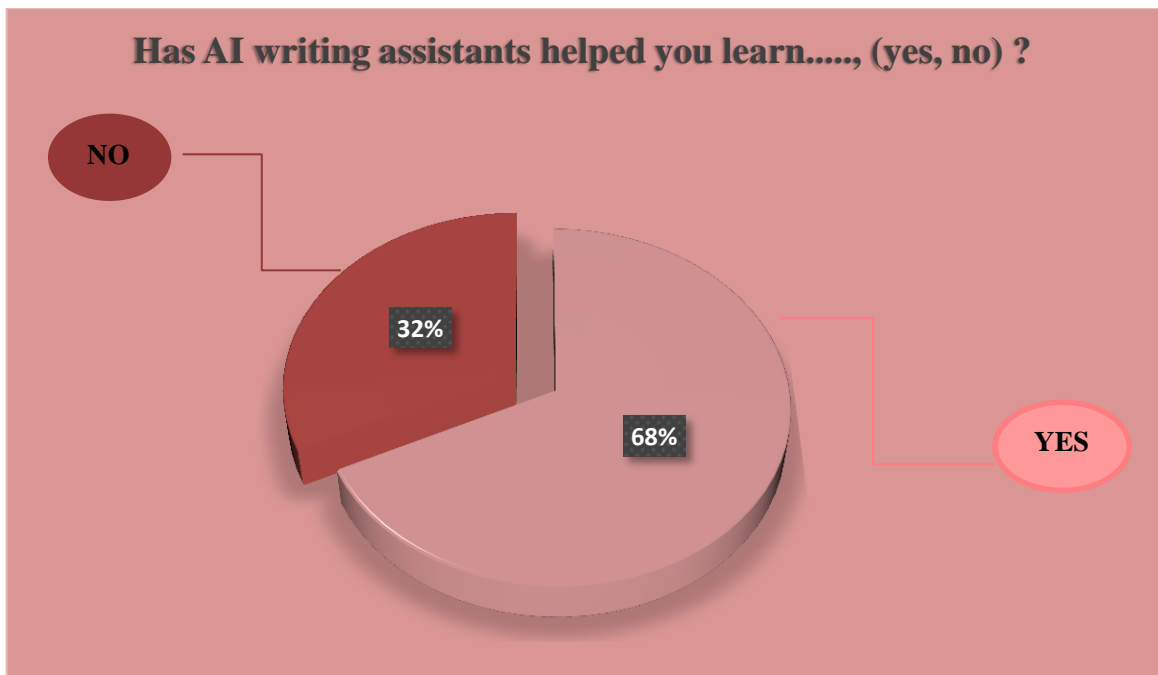


Figure 02: Perceptions of AI Writing Assistant Impact on Writing Skills

3.3. Question Item Three: Limited Reporting of Drawbacks with AI Writing Assistants

The majority of participants (22, or 79%) did not report any drawbacks or challenges with using AI writing assistants. Only a small portion (6 participants, or 21%) indicated that they encountered drawbacks or challenges. Further analysis of the open-ended responses from this group would be necessary to understand the specific nature of the reported difficulties.

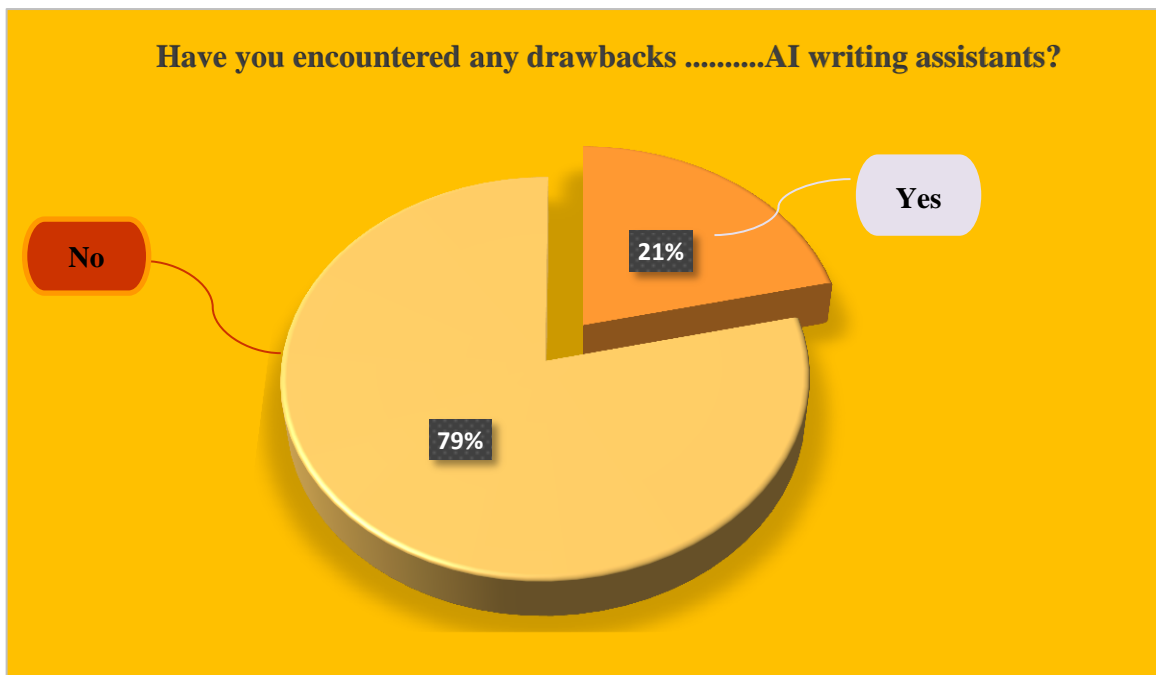


Figure 03: Reported Drawbacks with Respondents' Use of AI Writing Assistants.

3.4. Question Item Four: Respondents' Future Perspectives of AI Writing

Assistants affect Education:

The student responses regarding the impact of AI writing assistants on education paint a complex picture with both potential benefits and drawbacks. Here is a breakdown of the key themes:

Positive Impacts:

- **Enhanced Writing Skills:** Many students believe AI assistants will improve writing skills by suggesting new ideas, correcting mistakes, and improving language use.
- **Increased Creativity:** Some students see AI as a tool that can spark new ideas and enhance creativity, especially when used positively.
- **Efficiency:** AI assistants may save time for students and educators, allowing them to focus on more complex aspects of learning.

Negative Impacts:

- **Reduced Critical Thinking and Creativity:** A significant concern is that AI could hinder critical thinking and creativity if students become overly reliant on it for ideas and arguments.
- **Overdependence:** Students may become dependent on AI for writing tasks, potentially hindering their ability to think independently and develop their own writing skills.
- **Plagiarism and Unethical Use:** The responses suggest a concern that AI could be misused for plagiarism or unethical practices.

Positive Impact	Negative Impact
<ul style="list-style-type: none"> - Enhanced Writing Skills - Increased Creativity - Efficiency 	<ul style="list-style-type: none"> - Reduced Critical Thinking and Creativity - Overdependence - Plagiarism and Unethical Use

Table 08: Respondents' Future Positive and Negative Perspectives of AI Writing Assistants in Education.

4. Section 4: Linguistic Awareness

4.1. Question Item One: Respondents' confidence in their Writing Abilities when Using AI Writing Assistants

Several students expressed uncertainty about the overall impact, highlighting the importance of responsible use.

We can conclude that the student responses reveal a mix of optimism and apprehension regarding AI writing assistants. While many see potential for improved writing skills and efficiency, concerns exist about potential drawbacks like reduced critical thinking and overdependence. The key seems to lie in encouraging responsible use of AI tools to complement, not replace, the development of core writing skills and critical thinking abilities.

In addition, we can say that the prevalence of short, incomplete responses suggests that further exploration through interviews or surveys that are more detailed might be valuable to gain a deeper understanding of student perspectives. In addition, the skew towards a younger demographic (19-23) may influence the overall perspective. Students with less experience in academic writing might have different concerns compared to older students.

An even split emerged among participants regarding whether AI writing assistants boost confidence in writing abilities. Half of the participants (14, or 50.0%) indicated that AI assistants do boost confidence, while the other half (14, or 50.0%) were unsure about the impact on confidence.

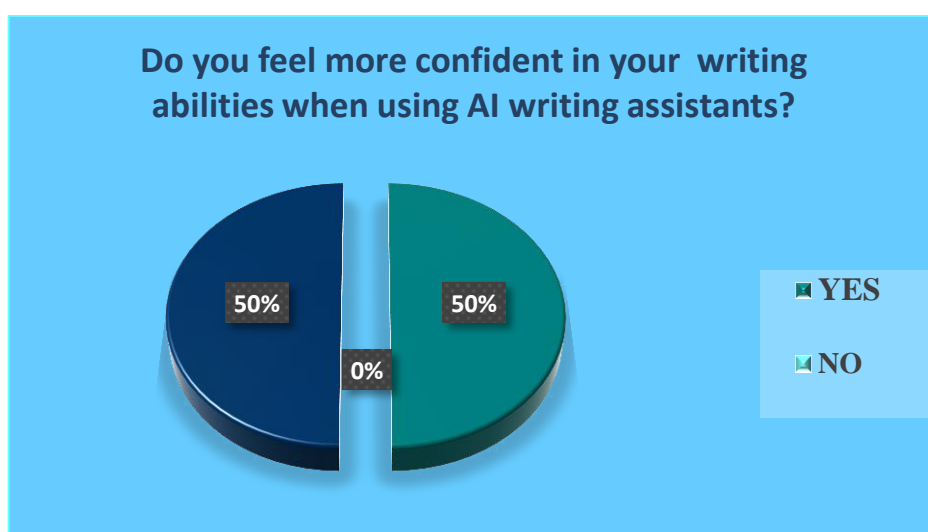


Figure 04: Respondents' confidence in their Writing Abilities when Using AI Writing Assistants

4.2. Question Item Two: Effects of AI Writing Assistants on respondents' Writing Motivation

The data shows a mixed perspective on whether AI writing assistants increase motivation to write. While 14 participants (50.0%) reported increased motivation, another group (5 participants, or 17.9%) indicated no increase in motivation. The remaining participants (9, or 32.1%) reported using AI assistants to increase motivation only sometimes.

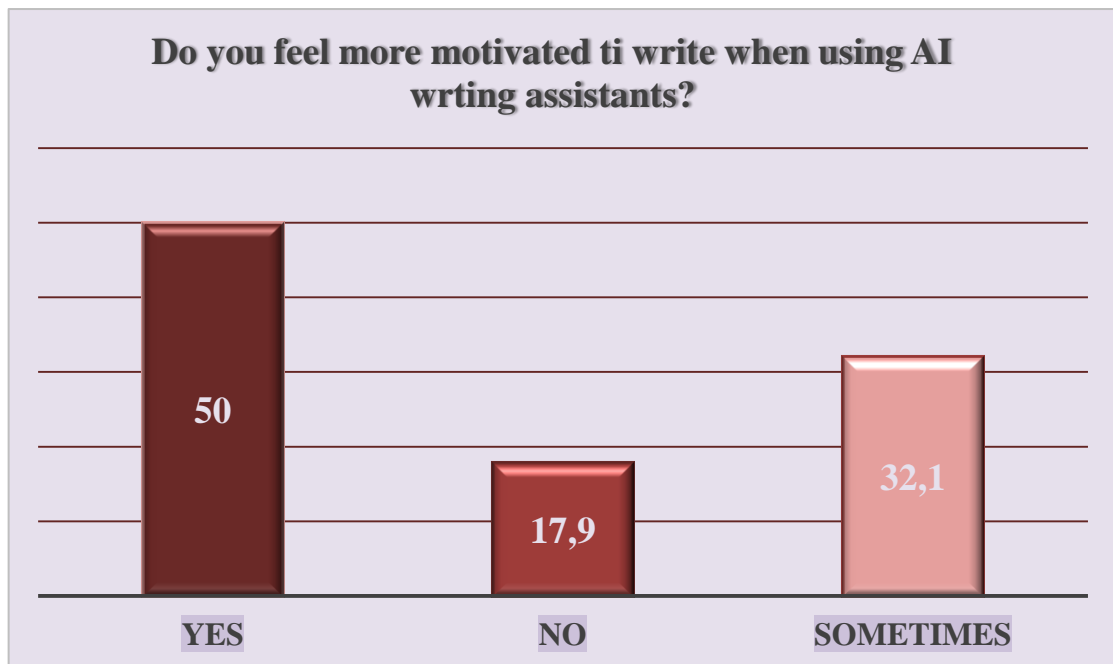


Figure 05: Effects of AI Writing Assistants on respondents' Writing Motivation

4.3. Question Item Three: Teachers' Reported Feedback on Students' Use of AI Writing Assistants

Teacher feedback on the use of AI writing assistants was mixed. While some participants (8, or 28.6%) reported receiving positive feedback, a larger group (13, or 46.4%) indicated receiving negative feedback. The remaining participants (7, or 25.0%) reported not receiving any feedback from teachers on their use of AI assistants. This distribution suggests potential concerns among educators about how these tools might be affecting student writing. Further analysis of the open-ended responses or interviews with teachers would help to understand the specific reasons behind the negative feedback.

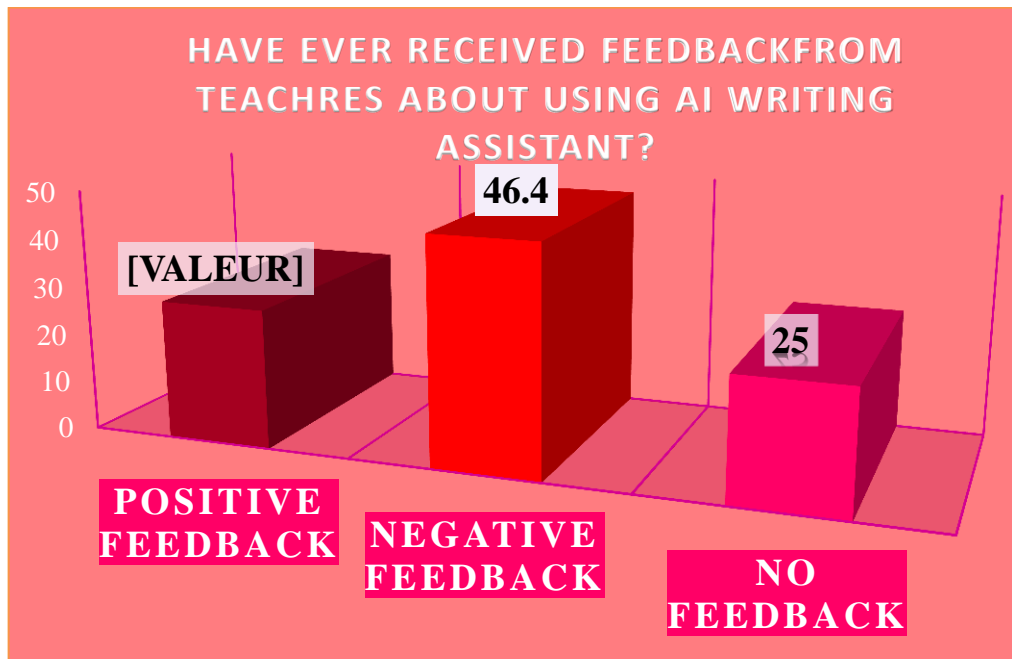


Figure 06: Teachers’ Reported Feedback on Students’ Use of AI Writing Assistants.

4.4. Question Item Four: Whether respondents recommend AI writing Assistants to their Peers

In this item, respondents’ answers vary, (3of 28) or 10.7% of them said (definitely yes), (7 of 28) or 25% of them have chosen (probably yes), (12 of 28) or 42.8% said they are (not sure), (6 of 28) or 21.4% and (1of 28) or 3.5% have answered (probably not) and (definitely not) they would recommend AI writing Assistants to their peers respectively.

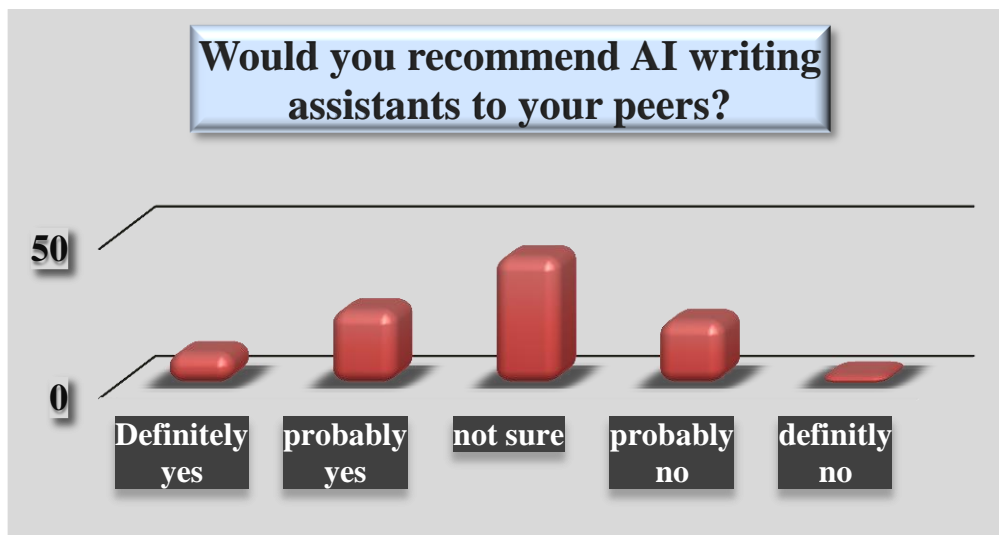


Figure 7: Respondents’ Recommendations to their Peers.

4.5. Question Item Four: Whether AI Writing Assistant is a Time Saver When Writing Essays

Respondents were asked to give their opinion about whether these assistants save time or not. Consequently, their answers were as follows: (23 of 28) with 82.1% said “yes” (2 of 28) with 7.1% have answered negatively “no”, and (3 of 28) with 10.8% were “not sure” if the AI writing Assistants save time when writing essays.

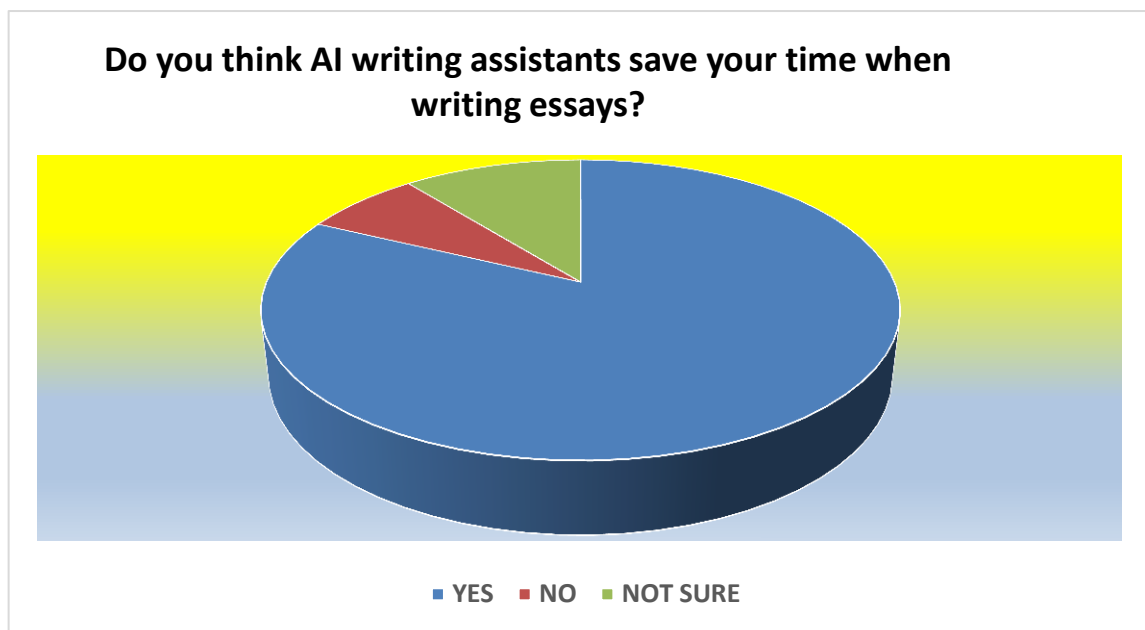


Figure 8: Whether AI Writing Assistant is a Time Saver When Writing Essays

Additional Item: Do you have any additional comments or suggestions about using AI writing assistant in your English essays?

Most respondents have given plenty of suggestions and comments while some preferred not to answer this item. Among their responses, the main ones will be highlighted in what follows:

- AI writing assistants should be used wisely and carefully.
- It must be used as a means to learn new information and be sure not to use it negatively.
- It helps to write well-shaped essays; however, it may lead to reduce creativity and critical thinking.
- AI improves students' performance in grammar, vocabulary, and sentence structure.

- It is a source of knowledge.

Other respondents mentioned that:

- The negative effects of AI usage will appear through time.
- It can lead to over-reliance, reducing students' writing abilities.
- Avoid using it the maximum.

2. Interview Guide for English Teachers

1. Section One: Background information:

1.1. Item One: Summary of Teaching Experience

The data reveals a range of teaching experience among the instructors interviewed:

- **Years of Experience:**
 - Three instructors have extensive experience (14 years, 15 years).
 - Six are newer to university teaching (1 year, 2 years, less than 5 years).
 -

Years of Experience	1--5	+10
Average (%)	66.6%	33.3%
Number	6	3

Table 9: Years of Experience

Courses Taught:

- A focus on writing and communication skills is evident (writing, methodology, didactics).
- Some instructors specialize in other areas like gender studies and sociolinguistics.
- This variety in experience and specialization suggests a well-rounded group of educators with diverse perspectives on incorporating AI writing assistants into their teaching.

1.2. Item Two: Essay Types Taught by Instructors

The instructors reported a variety of essay types assigned in their English courses:

- **Argumentative and Analytical:** These appear to be the most common types, likely aimed at developing critical thinking and reasoning skills.
- **Persuasive:** This type focuses on convincing the reader of a particular viewpoint.
- **Other Types:** This category suggests there may be additional essay formats used by some instructors, potentially including narrative or descriptive essays.
- **First Year Courses:** One instructor mentioned not assigning essays in their first-year course, possibly focusing on foundational writing skills before diving into more complex essay structures.

This range of essay types reflects the instructors' goals for their courses and the level of their students.

2. Section Two: AI Writing Assistant and Student Writing

2.1. Question Item One: Instructors' Awareness of Students Using AI Writing Assistants:

The data shows a striking trend: all nine instructors (100%) reported being aware of students using AI writing assistants like Grammarly, QuillBot, or ChatGPT for their essays. This suggests that the use of these tools is widespread among students in university English courses.

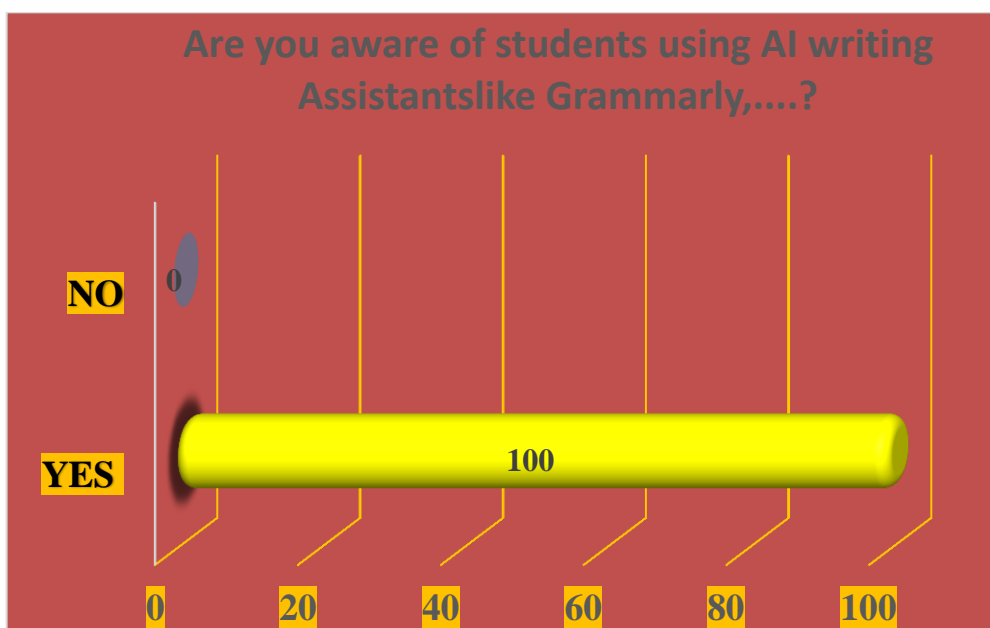


Figure 09: Teachers' Awareness of their Students' Use of AI Writing Assistant

2.2. Question Item Two: Perceived Prevalence of AI Writing Assistant Use by Students

The instructors' perceptions on how prevalent AI writing assistant use is among their students vary:

- **High Prevalence:** Several instructors (66.6%) believe the practice is widespread (e.g., "very common", "extensively used", "most students use it").
- **Uncertainty:** A few instructors (22.2%) acknowledge they are unsure of the exact extent of use.
- **No Answer:** One instructor (11.1%) did not provide a response to this question.

This data suggests that a significant portion of students in these English courses is likely using AI writing assistants, but a more comprehensive survey might be needed to get a more precise picture.

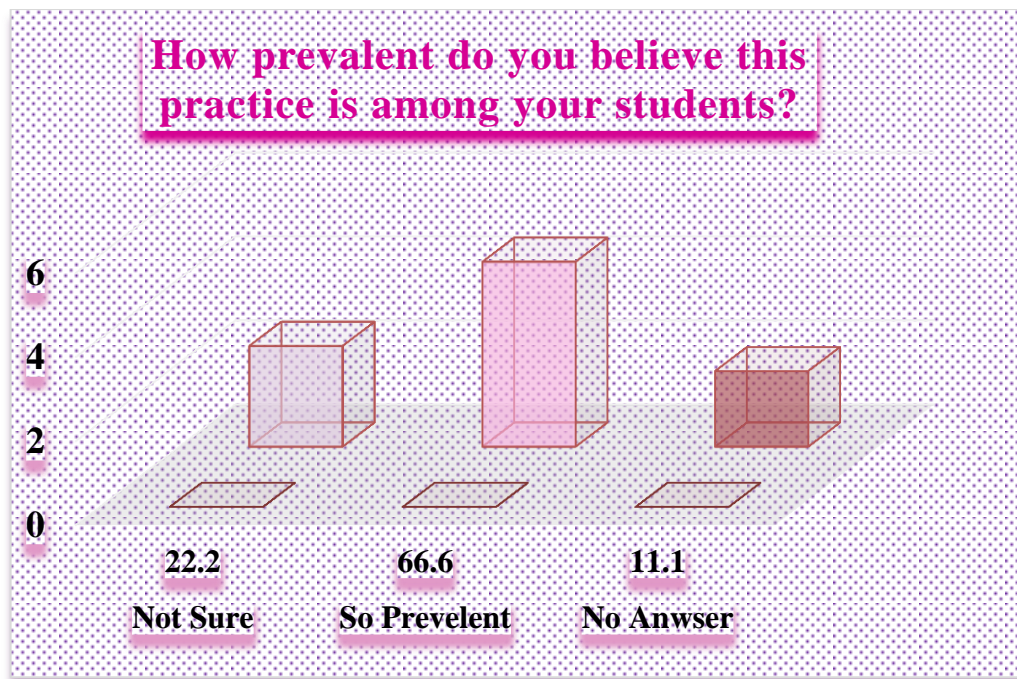


Figure 10: Teachers' predictions of the prevalence of AI Writing Assistants Among their Students.

2.3. Question Item Three: Potential Benefits of AI Writing Assistants for Students (According to Instructors)

The teachers identified several potential benefits of students using AI writing assistants responsibly:

- **Improved Mechanics:** AI tools can assist with grammar, sentence structure, and style, potentially leading to more polished essays. (e.g., "refining students essays by providing instant feedback")
- **Vocabulary Development:** Exposure to new vocabulary suggestions from AI tools could enhance students' writing skills. (e.g., "Learning some new vocabulary or grammatical structures")
- **Idea Generation and Brainstorming:** AI tools might help students overcome writer's block and generate ideas for their essays. (e.g., "Generating ideas, outlining some difficult topics")
- **Development of Writing Skills:** Some instructors believe responsible AI use could help students develop core writing competencies like grammar, vocabulary, and academic language structure. (e.g., "Students may develop the following competencies...")

It's important to note that some instructors expressed concerns about misuse, so these benefits seem to hinge on students using the tools strategically and in what follows we mention these benefits trusty.

What are the potential benefits of students using AI writing assistants?

- **Improved Mechanics:** (e.g., "refining students essays by providing instant feedback")
- **Vocabulary Development:** (e.g., "Learning some new vocabulary or grammatical structures")
- **Idea Generation and Brainstorming:** (e.g., "Generating ideas, outlining some difficult topics")
- **Development of Writing Skills:** (e.g., "Students may develop the following competencies...")

Table 10: Potential Benefits of Using AI Writing Assistants

2.4. Question Item Four: Potential Drawbacks of AI Writing Assistants for Students (According to Instructors)

Instructors highlighted several potential drawbacks associated with students using AI writing assistants:

- **Overdependence and Stagnation:** A major concern is that students might become overly reliant on AI, hindering their development of critical thinking and independent writing skills. (e.g., "Overdependence, stagnancy, no progress")
- **Lack of Originality and Plagiarism:** Instructors worry that students might misuse AI tools by copying content or relying too heavily on AI-generated text, leading to plagiarism and a lack of original thought. (e.g., "Lack of integrity, absence of proper source")
- **Reduced Critical Thinking:** Overreliance on AI for ideas and structure could hinder students' ability to develop critical thinking skills and analyze information independently. (e.g., "The risk of being overly reliant on technology, hinder the ability to critical thinking")
- **Passive Learning and Inaccurate Information:** Students might become passive learners, relying solely on AI suggestions without critically evaluating the information or developing their own arguments. (e.g., "Being passive and dependent on AI tools, biased responses or inaccurate information")

These drawbacks highlight the importance of teaching students how to use AI tools responsibly and strategically alongside developing their core writing and critical thinking skills. Here we present teachers' reported answers to this question.

What are the potential drawbacks and challenges associated with this practice?

- **Overdependence and Stagnation:** (e.g., "Overdependence, stagnancy, no progress")
- **Lack of Originality and Plagiarism:** (e.g., "Lack of integrity, absence of proper source")
- **Reduced Critical Thinking:** (e.g., "The risk of being overly reliant on technology, hinder the ability to critical thinking")
- **Passive Learning and Inaccurate Information:** (e.g., "Being passive and dependent on AI tools, biased responses or inaccurate information")

Table 11: The Potential Drawbacks and Challenges Associated with this Practice.

2.5. Question Item Five: Suspected Misuse of AI Writing Assistants by Students.

The data reveals a significant concern among instructors regarding students' misuse of AI writing assistants. Here is a breakdown of the findings:

- **High Prevalence of Suspected Misuse:** A majority of instructors (7 out of 9) reported encountering instances where they suspected students misused AI writing assistants. This suggests that misuse is a potential consequence of these tools being readily available.
- **Impact on Originality and Plagiarism:** Several instructors specifically mentioned concerns about plagiarism or lack of originality (e.g., "Yes, many times", "Perhaps, the content may lack depth and originality"). This aligns with the drawbacks previously discussed.
- **Variations in Frequency:** While a majority reported suspected misuse, some instructors did not encounter it as frequently ("No, I have not"). This might be due to factors like course level or specific teaching methods.

These findings highlight the need for instructors to develop strategies for detecting AI misuse and fostering responsible use of these tools in their classrooms.

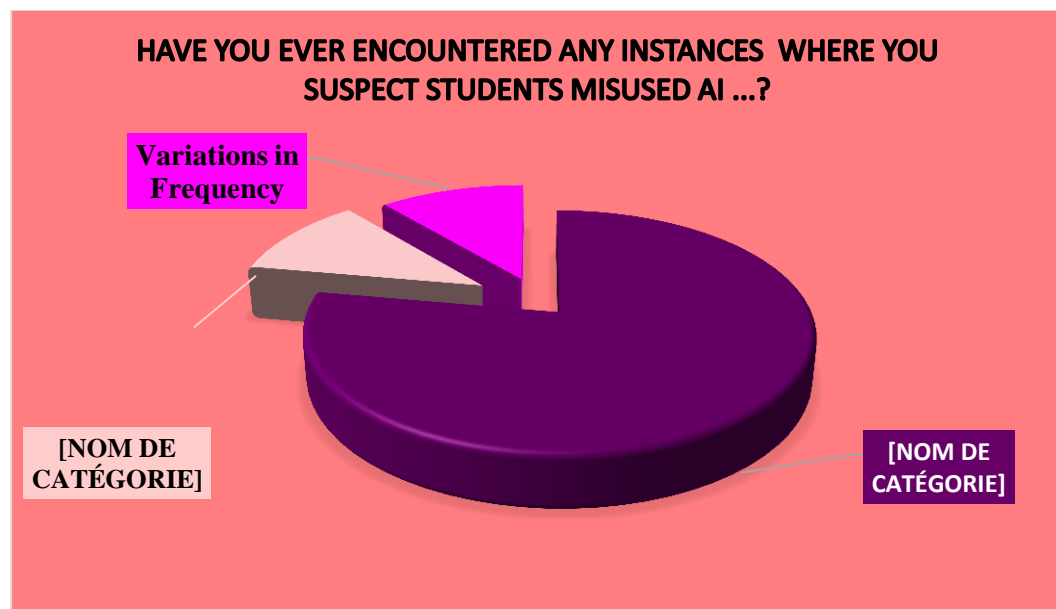


Figure 11: Suspected Misuse of AI Writing Assistants by Student.

2.6. Question Item Six: Approaches to Addressing Potential AI Use in Essay Grading

The instructors' responses reveal various approaches to handling the potential use of AI writing assistants in essay grading:

- **Focus on Critical Thinking and Originality:** Several instructors emphasize the importance of originality and critical thinking in their grading process. This could involve looking for evidence of independent analysis, argument development, and student voice in the essays. (e.g., "I emphasise the originality and critical thinking ability", "I focus on the relevance of the ideas to the topic and the context")
- **Instructor Experience and Awareness:** Some instructors rely on their knowledge of their students' writing styles and abilities to identify potential AI use. (e.g., "I know the levels of my students so if I suspect that someone has depended too much on an AI tool to write their essay I would ask them about it")
- **Limited Strategies or No Response:** A few instructors mentioned not having specific strategies in place or did not provide a response to this question. This suggests a need for professional development opportunities to equip instructors with effective detection methods.

Overall, the data highlights the inconsistent approaches currently used to address AI writing assistants in essay grading. This suggests a need for standardized and effective strategies to ensure academic integrity while adapting teaching methods to this evolving technological landscape.

How do you currently address the potential use of AI Writing assistants in your essay grading process?		
<p>Focus on Critical Thinking and Originality:(e.g., "I emphasise the originality and critical thinking ability", "I focus on the relevance of the ideas to the topic and the context")</p>	<p>Instructor Experience and Awareness:(e.g., "I know the levels of my students so if I suspect that someone has depended too much on an AI tool to write their essay I would ask them about it")</p>	<p>Limited Strategies or No Response.</p>

Table 12: Focus on Critical Thinking and Originality**2. Section Three: Impact on Learning and Teaching****Question Item One: Potential Benefits of AI Writing Assistants for Learning (According to Instructors)**

The teachers expressed mixed views on whether AI writing assistants can positively affect students' writing development. Here is a breakdown of the perspectives :

- **Conditional Benefit:** Several instructors believe AI tools can be beneficial **if used responsibly**. They see potential for :
 - **Vocabulary Development:** Exposure to new vocabulary suggestions can enhance writing skills. (e.g. "Yes, through teaching their new vocabulary")
 - **Idea Generation and Outlining:** AI can help students brainstorm and structure their essays. (e.g., "Yes, they can help them writ filtering different ideas...")
 - **Developing Critical Thinking:** Carefully evaluating AI-generated suggestions can encourage critical thinking. (e.g., "Yes, as long as they use them in the right way, by activating their critical thinking skills")
- **Limited Benefit:** A few instructors offered more limited positive views, suggesting AI might help students learn from data provided or improve outlining.

These responses highlight the importance of teaching students responsible AI use alongside critical thinking skills to maximize the potential benefits.

- **Scepticism:** One instructor did not believe AI writing assistants play a positive role in developing writing skills.

This data suggests a need for further exploration of how AI writing assistants can be effectively integrated into the learning process to enhance student-writing development.

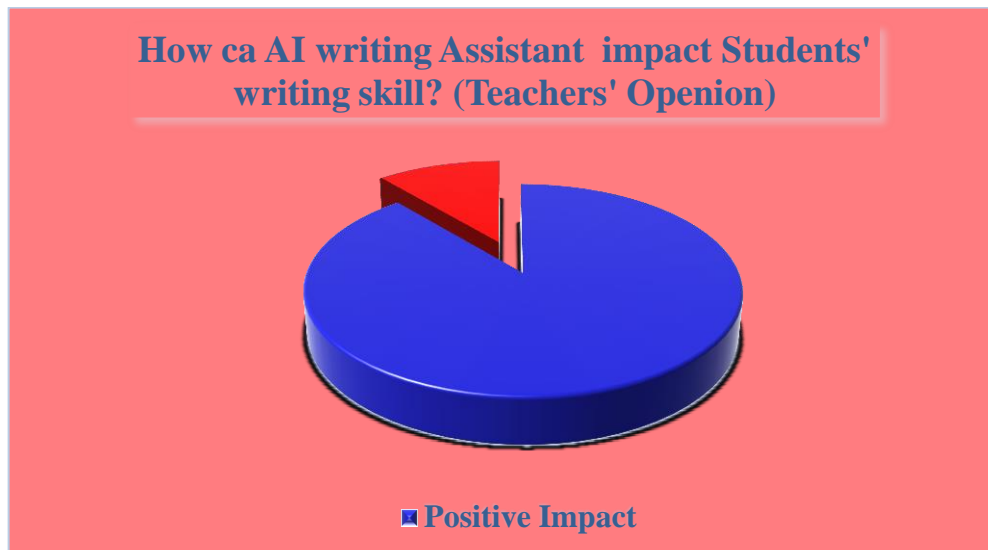


Figure 12: Teachers' perspectives of the impact of AI writing Assistants on students' Writing Skill.

3.2. Question Item Two: Adapting Teaching Methods for the Age of AI Writing Assistants

The instructors acknowledged the need to adapt their teaching methods in response to the potential influence of AI writing tools. Here are some key strategies they suggested:

- **Emphasis on Critical Thinking and Originality:** Several instructors stressed the importance of designing assignments that require students to analyse information critically, develop their own arguments, and express their unique voice. (e.g., "They can design assignment that require critical analysis and personal reflection")
- **Teaching Responsible AI Use:** Some instructors see a role for educating students on how to use AI tools effectively and ethically. This could involve workshops or classroom discussions on critical evaluation of AI-generated content. (e.g., "They can explain or even lead workshops on careful use of AI tools")
- **Promoting Student Ownership:** Insisting on students demonstrating their own understanding and production through writing assignments is another strategy mentioned. (e.g., "Insisting on students' personal production")

Additional Considerations:

- **Limited Responses:** A few instructors did not provide specific suggestions, suggesting a need for further exploration and professional development opportunities.
- **Integration into Learning Activities:** One instructor mentioned the possibility of

incorporating AI tools directly into practical learning activities, potentially for brainstorming or outlining ideas. This is an interesting concept that could be further explored.

These findings highlight a need for instructors to be proactive in adapting their teaching methods. A multi-pronged approach that emphasizes critical thinking, responsible AI use, and student ownership of the writing process seems to be promising for ensuring academic integrity and effective learning in the age of AI writing assistants.

How can English instructors adapt their teaching methods to address the potential influence of AI writing tools ...?

- Emphasis on Critical Thinking and Originality
- Teaching Responsible AI Use
- Promoting Student Ownership

Additional Considerations:

- Limited Responses:
- Integration into Learning Activities

Table 13: Teachers' suggested Strategies to adopt to the potential influence of AI writing tools.

3.3. Question Item Three: The Future of AI Writing Assistants in English Language Learning: A Divided Landscape

The instructors' perspectives on the future integration of AI writing assistants in English language learning differ:

- **Increased Integration:** A majority of instructors (6 out of 9) with 66.7% believe AI writing assistants will become more integrated. Reasons cited include:
- **Potential Benefits:** These tools can act as "study buddies" for explanation, simplification, and language practice. (e.g., "Yes because they can be used as study buddies...")
- **Inevitability of Technological Change:** As AI tools become more popular,

their use in education is seen as inevitable. (e.g., "Certainly, because they are getting more and more popular")

- **Adapting to Student Needs:** If AI tools can be adapted to meet individual learning styles, they could be valuable learning aids. (e.g., "Yes, when used in a way to meet learners needs...")
- **Reservations and Concerns:** However, some instructors (3 out of 9) with 33.3% expressed reservations. Reasons for concern include:
- **Overdependence on Technology:** There is a risk of students becoming overly reliant on AI, hindering their independent learning. (e.g., "I wouldn't accept")
- **Focus on Detection vs. Integration:** Focusing solely on developing detection tools might not be the most productive approach. (e.g., "Of course as long as detection tools are being developed...")

Uncertainties and Considerations :

- **Limited Scope of the Data:** With a small sample size, more extensive research is needed to get a broader picture of future trends.
- **Network Dependence:** One instructor mentioned network dependence, highlighting a potential barrier to accessibility, particularly in areas with limited internet connectivity.

Overall, the data suggests that AI writing assistants are likely to play a more prominent role in English language learning, but their effective integration requires careful consideration of potential benefits and drawbacks. Developing strategies to promote responsible AI use and foster critical thinking skills alongside language learning will be crucial.

Potential Benefits and Integration:

- **Revolutionizing Education:** Some instructors believe AI writing assistants have the potential to revolutionize education by transforming teaching strategies and creating more engaging learning experiences. (e.g., "It is said that ai revolutionise education y vchanging teaching strategies")
- **Integration into Classroom Activities:** Several instructors foresee AI tools

becoming integrated into regular classroom activities, potentially for tasks like practice, brainstorming, or personalized feedback. (e.g., "It will be integrated within classrooms activities eventually I think")

Drawbacks and Challenges :

- **Overdependence and Reliance:** A significant concern is that students might become overly reliant on AI, hindering their development of critical thinking and independent writing skills. (e.g., "It will result in a generation of reliant writers")

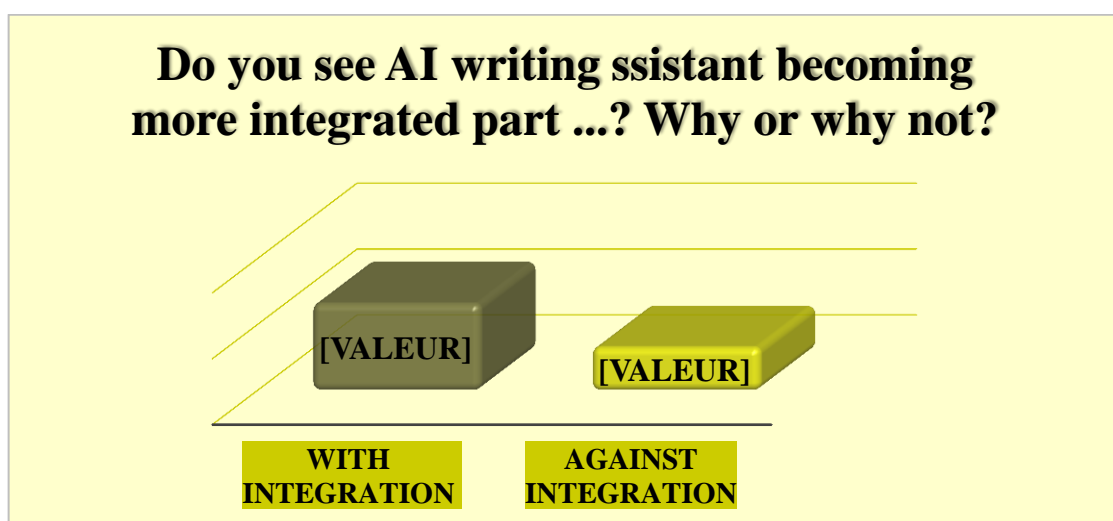


Figure 13: The Future of AI Writing Assistants in English Language Learning

3.4. Question Item Four: Future Considerations:

- **Adapting Teaching Methods:** The instructors acknowledge a need for educators and policymakers to adapt teaching methods to address the challenges and opportunities presented by AI writing assistants. (e.g., "It may change teaching methods and strategies")
- **Importance of Research:** More research is needed to understand the long-term impact of AI writing assistants on education.
- Overall, the impact of AI writing assistants on education seems to be a complex issue with both potential benefits and drawbacks. The direction of that impact depends on how these tools are used and integrated into the learning process.

How do you think AI writing assistants will affect the future of education?

- **Adapting Teaching Methods:** e.g., "It may change teaching methods and strategies")
- **Importance of Research:** research is needed to understand the long-term impact of AI writing assistants on education.

Table 14: Future Considerations.

4. Section Four: Additional Questions.

4.1. Question Item one: Instructors' Personal Experiences with AI Writing Assistants

While the primary focus of the data was on instructors' perspectives regarding student use of AI writing assistants, some instructors also shared their personal experiences:

- **Positive Experiences:** A few instructors reported positive experiences using AI writing assistants for tasks like brainstorming, outlining, and improving writing flow. (e.g., "Yes, it helped me structure my writing..."; "Yes sometimes I use it in brainstorming...")
- **Neutral Experiences:** Some instructors mentioned using AI tools for exploration but not for core academic writing. (e.g., "I explored the free version of ChatGPT but did not use it for actual academic writing")
- **Negative Experiences:** One instructor reported a negative experience with an AI tool providing inaccurate information. (e.g., "Bad experience this tool provides me with wrong information...")
- **No Experience:** Several instructors did not have any personal experience using AI writing assistants. (e.g., "No, never", "No I don't use it")

This limited data suggests that some instructors are open to exploring AI writing assistants for their own professional needs, but cautious about relying on them for core academic writing tasks.

It would be interesting to see further research on a larger scale to explore faculty use of AI writing assistants and its potential impact on teaching practices.

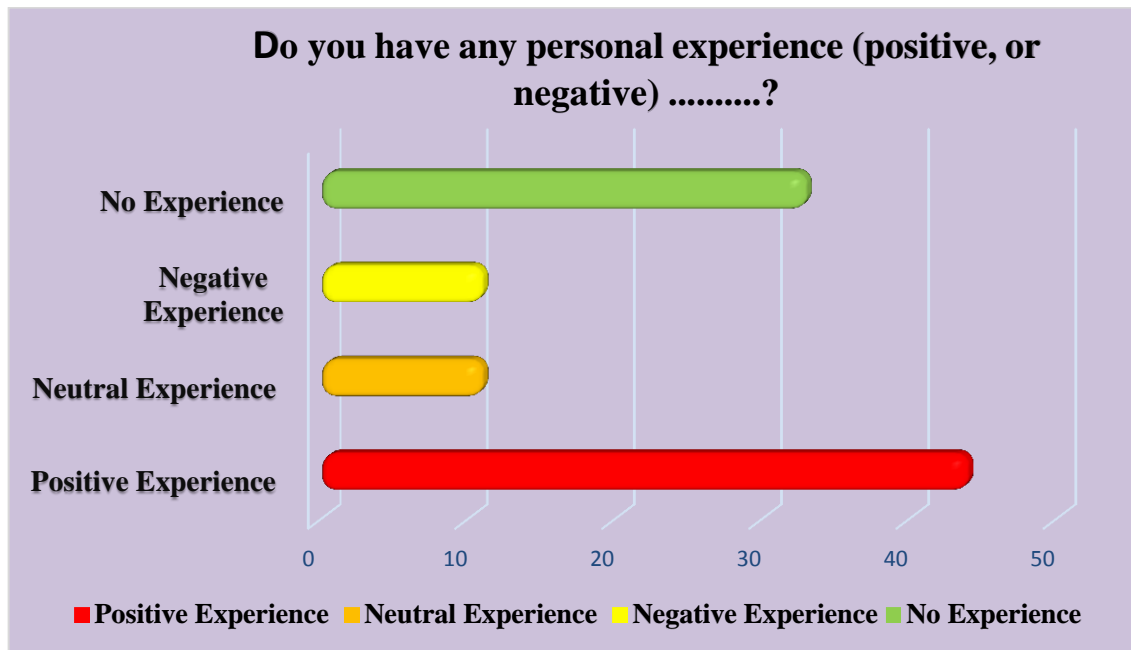


Figure 14: Instructors' Personal Experiences with AI Writing Assistant.

4.2. Question Item Two: Instructor Interest in Exploring Responsible AI Use

The data reveals a strong interest among instructors in exploring strategies for incorporating responsible AI writing assistant use into their English curriculum:

- **High Interest:** A majority of instructors (6 out of 9) with 74% expressed interest in exploring this topic. This suggests a willingness to adapt and integrate new technologies into their teaching.
- **Conditions and Considerations:** Two instructors (with 25%) mentioned conditions like a focus on responsible AI use, workshops, or training opportunities to facilitate successful integration. (e.g., "But with much focus on wise uses of AI", "Yes but maybe that needs workshops, training and study days") This highlights the importance of providing support for instructors.
- **Neutral or Unenthusiastic:** One instructor (with 1%) provided neutral responses or expressed a lack of interest at this time.

Overall, the data suggests a promising opportunity for professional development initiatives focused on helping instructors integrate AI writing assistants responsibly into their teaching practices. This could involve workshops on critical evaluation of AI-generated content, strategies for detecting misuse, and developing assignments that promote original thinking and responsible AI use alongside effective writing skills.

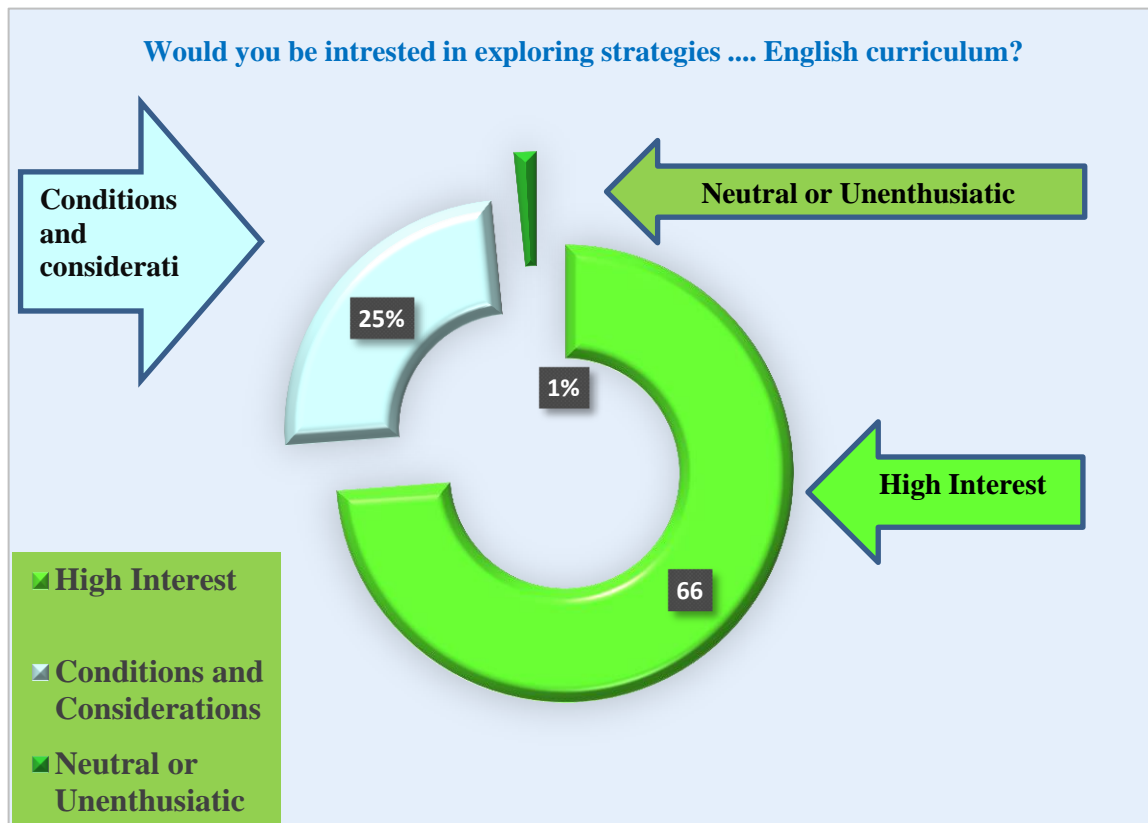


Figure 15: Instructor Interest in Exploring Responsible AI Use.

3. Discussion of the findings of students' Questionnaire

After examining the students' questionnaire, we have retrieved valuable amounts of data that allow us to draw conclusions and respond to the inquiries of our study also to establish if AI writing assistants affects English students' writing skill or not. This section aims to shed light on the most important components of the questionnaire. The results of the first section of the questionnaire reveal important information about the targeted sample. In terms of gender distribution, we realized that AI writing assistants are likely to affect females more than males; therefore, most students are of young age bands from 19 to 23 years old, which makes them more susceptible to the usage of AI tools. Also, respondents' level of English ranges from intermediate to advanced; this indicates that they have a good English background. However, we have synthesized that English students are recently using AI tools namely AI writing assistants among which they have mentioned Grammarly, QuillBot, and ChatGPT with (60.71%), which is mostly used in their writing assignments. The frequent use of AI writing assistants among students ranges between "Sometimes" with (46.4%) and "always" or "often" with (21.4%). This shows that students are becoming more reliant on these tools and they are using them frequently in their writing tasks.

The majority of students (79%) express their agreement that AI writing assistants guide them and enhance their writing skill with 67.8% by providing them with several means of improving their essays as: suggesting ideas (60.7%), grammar correction (25%), and improving sentence structure (10.7%). Consequently, the content of their essays shows a range of developing arguments, clarifying ideas and, meeting word count requirement. However, the minority students (21%) claim that the use of AI writing assistants may have some challenges and drawbacks that would affect students' performance negatively. We can summarize these negative points as follows: Over dependence on AI tools, reduce critical thinking and creativity, plagiarism and unethical use. Besides, we have noticed that teachers' feedback concerning students' use of AI writing assistants was mixed, but a larger group of these students received a negative feedback from their teachers and the ones who gave a positive feedback believe that students must be responsible. If they use AI writing assistants tools, they have to use it carefully and wisely.

We conclude that, several students expressed uncertainty about the overall impact, highlighting the importance of responsible use. We can conclude that the students' responses reveal a mix of optimism and apprehension regarding AI writing assistants. While many see potential for improved writing skills and efficiency, concerns exist about potential drawbacks like reduced critical thinking and overdependence. The key seems to lie in encouraging responsible use of AI tools to complement, not replace, the development of core writing skills and critical thinking abilities. In addition, we can say that the prevalence of short, incomplete responses suggests that further exploration through interviews or surveys that are more detailed might be valuable to gain a deeper understanding of student perspectives. In addition, the skew towards a younger demographic (19-23) may influence the overall perspective. Students with less experience in academic writing might have different concerns compared to older students.

4. Analysis and Interpretation of the Teachers' Interview Introduction

This interview explores the perspectives of English teachers on how AI writing assistant tools are being used by students and the potential consequences for writing development. By interviewing instructors with diverse experience levels and course specializations, the study aims to understand their awareness of student AI use, perceived benefits and drawbacks of these tools, and strategies for addressing them in the classroom.

4.1. Section One: Teacher Experience and Course Focus

The teachers interviewed have a variety of experience levels, with some having over ten years of experience and others being newer to university teaching. We notice that there is a focus on writing and communication skills in the courses they teach, with some instructors specializing in areas like gender studies and sociolinguistics. We synthesize that this range of experience and specialization suggests a well-rounded group of educators with diverse perspectives on incorporating AI writing assistants into their teaching.

4.2. Section Two: AI Writing Assistant and Student Writing

In this section, all instructors (100%) reported that they are aware that students use AI writing assistants like Grammarly, QuillBot, or ChatGPT for their essays. This suggests the widespread use of these tools among students. However, they have varying perceptions of how prevalent AI use is, some (66.6%) believing it is common and others (22.2%) are unsure of the exact extent. Which means that we are sure that AI writing assistant tools are used by our students but we are not sure to what extent do they use them.

Regarding instructor's perspectives of the potential benefits of AI writing assistants for students, we have found that all teachers agreed on the following points including improved mechanics, vocabulary development, idea generation, and development of writing skills. However, they emphasize responsible use to avoid these benefits turning into drawbacks, which can be summarized in approximately the same ones mentioned above by the students, such as overdependence leading to stagnation, lack of originality and plagiarism, reduced critical thinking, and passive learning with inaccurate information. They highlight the importance of teaching responsible AI use alongside developing core writing and critical thinking skills.

A significant majority of instructors (7 out of 9) reported encountering instances where they suspected students misused AI writing assistants. This suggests potential consequences associated with readily available AI tools. In this respect, they have suggested various approaches to address potential AI use in essay grading, with a focus on critical thinking, originality, instructor experience, and awareness. However, some instructors lack specific strategies, highlighting the need for professional development opportunities to equip them with effective detection methods.

4.3. Section Three: Impact on Learning and Teaching

Instructors' views on the impact of AI writing assistants on student writing

development are mixed. Some believe they can be beneficial if used responsibly, while others express skepticism. Additionally, they acknowledge the need to adapt their teaching methods in response to AI writing assistants. Some key strategies suggested include emphasizing critical thinking and originality, teaching responsible AI use, and promoting student ownership of the writing process. When being asked about the future integration of AI writing assistants in English language learning we have noticed that the majority of instructors believe these tools will become more integrated, citing potential benefits and the inevitability of technological change. However, some instructors express reservations about overdependence on technology and a focus on detection over integration, with a small sample size who think that research that is more extensive is needed to get a broader picture of future trends in AI writing assistant use. Network dependence is another factor to consider, potentially hindering accessibility in areas with limited internet connectivity.

Overall, AI writing assistants are likely to play a more prominent role in English language learning, but their effective integration requires careful consideration of potential benefits and drawbacks.

4.4 . Section Four: Additional Questions

Interestingly, some instructors even shared personal experiences with AI writing assistants. These experiences ranged from positive (finding them helpful for brainstorming, outlining, and improving flow) to neutral (using them for exploration but not core academic writing) to even negative (encountering inaccurate information). Despite this spectrum of experiences, a significant majority (74%) expressed interest in exploring strategies for incorporating responsible AI writing assistant use into their curriculum. This openness to adaptation suggests a willingness to integrate new technologies while ensuring responsible use by students.

Conclusion

The study reveals a complex opinion regarding AI writing assistants in English language learning. While students see potential benefits and some teachers acknowledge them, concerns about responsible use and potential drawbacks remain. Both students and teachers highlight the importance of critical thinking and student ownership of the writing process. The future of AI writing assistants seems to be one of increased integration, but with a cautious approach that emphasizes responsible use and addresses potential pitfalls. Further research with a larger sample size and including faculty use of AI assistants is recommended to develop effective teaching practices in this evolving technological landscape. It is also important to consider limitations like network dependence that could affect accessibility.

This analysis merges the key points from the student and teacher sections, highlighting areas of agreement and disagreement. It concludes by summarizing the main points and emphasizing the need for further research and responsible use of AI writing assistants.

General conclusion

General Conclusion:

The present research work is devoted to the investigation of the dynamic interaction between human language and AI tools which has a strategic value for education. It aims to study the integration and the significance of these tools in the progress of English learners skills, the perspectives of English instructors about the use of AI tools, and the impact of this use on their students' performance. This research presents the analysis and interpretation of the data gathered with regard to three sections, the literature review (history, definition, types, and tools), the second chapter presents the methodology of this investigation, and the third chapter deals with the analysis and interpretation of the pairs instruments used for the sake of capturing the diverse range of participant' answers, EFL students and teachers of English department at the university of Tiaret.

Thus, the researchers started by asking the following questions:

Q1: What features does the interaction of human language and Artificial Intelligent (AI) bring to English language Teaching-learning process?

Q2: How does English language learner make use of the Human-AI interaction to develop his four language skills?

Q3: What perspectives do the English instructors have about AI tools use?

Q4: And what impact does this use have on their students?

The above questions led the researchers to formulate the following hypotheses:

1. We hypothesis that the interaction of the human language and AI enabled English language users to communicate, learn, perform and solve problems.

2. We assume that the Human-AI interaction has improved the teaching and learning process by providing learners personal learning experience and engagement, offering them immediate data and feedback.

3. English instructors perceive AI tools as beneficial for enhancing learning and providing efficient feedback.

General conclusion

4. The use of AI leads to some challenges such as reducing human interaction, over-reliance on technology and the decrease of critical thinking in addition to the potential inequities to technology.

In this investigation, the relevant data was collected from multiple tools using a mixed approach. We adopted both quantitative and qualitative approaches to examine how students use AI tools, and their effect on students' writing skill, how instructors measure this use as well as what impact it casts on their students' performance.

Therefore, all this allowed us to quantify students' usage using statistics. Teachers on the contrary were the subject of our qualitative inquiry, which aims at describing their various reactions and strategies while dealing with students writing essays. By designing and conducting a case study at Tiaret University, and by analyzing and triangulating data collected from various sources using a set of research instruments (students' questionnaire and an interview with teachers).

Hence, the hypotheses put forward were confirmed, that the interaction of the human language and AI enabled English language users to communicate, learn, perform and solve problems. In addition, the Human-AI interaction has improved the teaching and learning process by providing learners personal learning experience. Moreover, English instructors perceive AI tools as beneficial for enhancing learning and providing efficient feedback. Finally yet importantly, the use of AI leads to some challenges such as over-reliance on technology and the decrease of critical thinking in addition to the potential inequities to technology.

Results have revealed a mix of optimism and apprehension regarding AI writing assistants. While many see potential for improved writing skills and efficiency, concerns exist about potential drawbacks like reduced critical thinking and overdependence. In addition, English students expressed their agreement that AI writing assistants guide them and enhance their writing skill by providing them with several means of improving their essays as: suggesting ideas, grammar correction, and improving sentence structure. Consequently, the content of their essays shows a range of developing arguments, clarifying ideas and, meeting word count requirement.

Results also show that instructors perceive the potential benefits of AI writing assistants for students on the following points including improved mechanics, vocabulary development, ideas generation, and development of writing skills. However, some

General conclusion

instructors express reservations about overdependence on technology and a focus on detection over integration. Network dependence is another factor to consider, potentially hindering accessibility in areas with limited internet connectivity.

However, students claim that the use of AI writing assistants may have some challenges and drawbacks that would affect students' performance negatively. Such as overdependence on AI tools, reduce critical thinking and creativity, plagiarism and unethical use. Instructors alongside their students emphasize responsible use to avoid these benefits turning into drawbacks, which are summarized in approximately the same ones mentioned above by the students, such as overdependence leading to stagnation, lack of originality and plagiarism, reduced critical thinking, and passive learning with inaccurate information. They highlight the importance of teaching responsible AI use alongside developing core writing and critical thinking skills.

To conclude, AI tools namely writing assistants are likely to play prominent role in English language teaching-learning process. In fact, it is combining human language to the robotics language, which results in what is recently known as the human-AI interaction. This phenomenon does not affect only the writing skill but it goes beyond that to touch all the linguistic skills; it paves the way to a new linguistic era where the technological reliance is shown. Through this study we could focus only on one skill (writing skill) because of shortage of time and lack of means; however, human AI interaction touches all the linguistic skills and it affect the human listening, speaking and reading skills as well. For this reason, further investigation is really needed to capture and identify the effect of AI tools on the linguistic progression general and to raise awareness.

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Appendices

Appendix A

The Impact of AI Writing Assistants on Student' Essay Writing

Thank you for agreeing to participate in this questionnaire. Our goal is to understand the impact of using AI writing assistants on students' essay writings.

Your honest responses will be crucial to this research.

Please read each question carefully and select the answer that best reflects your experience. All responses are confidential.

1. General Information:

1.1. Gender:

Male

Female

1.2. Age:

19_23

23_25

+25

1.3. Level of English study:

Beginner

Intermediate

Advanced

2. AI Writing Assistant Usage:

2.1. Which of the following AI writing assistant do you use most frequently? (select all that apply).

Grammarly

QuillBot

ChatGPT

None of the above

2.2. How often you use these tools for essay writing?

- Never
- Always
- Often
- Sometimes
- Rarely

2.3. What do you find most helpful about AI writing assistants?

- Grammar correction
- Suggesting ideas
- Improving sentence structure
- Other

2.4. Do you think AI writing assistants improve the quality of your essays?

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

3. Impact on Writing:

3.1. How AI writing assistants affect the content of essays?

- Clarify ideas
- Develop arguments
- Meet word count requirement
- Other option

3.2. Has AI writing assistants helped you learn and improve your writing skills, (yes, no). If the answer is “yes” elaborate how?

- Yes:
- No

3.3. Have you encountered any drawbacks or challenges while using AI writing assistants? If “yes” elaborate.

Yes:

No

3.4. How do you think AI writing assistants will impact the future of education?

.....

4. Linguistic Awareness:

4.1. Do you feel more confident in your writing abilities when using AI writing assistants?

Yes

No

Not sure

4.2. Do you feel more motivated to write when using AI writing assistants?

Yes

No

Sometimes

4.3. Have you ever received feedback from teachers about using AI writing assistants?

Positive feedback

Negative feedback

No feedback

4.4. Would you recommend AI writing assistants to your peers?

Definitely yes

Probably yes

Not sure

Probably not

Definitely not

4.5. Do you think AI writing assistants save your time when writing essays?

- Yes
- No
- Not sure

4.6. Do you have any additional comments or suggestions about using AI writing assistants in your English essays?

.....

Thank you for your participation😊

Appendix B

Interview Guide: Impact of AI Writing Assistants on Student Essay Writing (English Teachers)

Thank you for agreeing to participate in this interview. Our goal is to understand your perspectives on the use of AI writing assistants by students in their English essays. Your honest responses will be crucial to this research.

1. Background information:

1.1. Briefly describe your teaching experience at the university level (dr.(....), number of years, courses taught).

.....

1.2. In your English courses, what types of essays do students typically write ?

- Argumentative
- Analytical
- Persuasive
- Other types

2. AI Writing Assistants and Student Writing:

2.1. Are you aware of students using AI writing assistants like Grammarly, QuillBot, or ChatGPT for their essays?

- Yes
- No

2.2. If so, how prevalent do you believe this practice is among your students?

.....

2.3. In your opinion, what are the potential benefits of students using AI writing assistants for essay writing?

.....

2.4. Conversely, what are the potential drawbacks or challenges associated with this practice?

.....

2.5. Have you encountered any instances where you suspect students misused AI writing assistants, leading to plagiarism or a lack of original thought?

.....

2.6. How do you currently address the potential use of AI writing assistants in your essay grading process?

.....

3. Impact on Learning and Teaching:

3.1. Do you believe AI writing assistants can play a positive role in helping students develop their writing skills? If so, how?

.....

3.2. In your view, how can English instructors adapt their teaching methods to address the potential influence of AI writing tools on student essays?

.....

3.3. Looking ahead, do you see AI writing assistants becoming a more integrated part of the English language learning process? Why or why not?

.....

3.4. How do you think AI writing assistants will impact the future of education?

.....

4. Additional Questions (optional):

4.1 Do you have any personal experiences (positive or negative) with using AI writing assistants for your own writing needs?

.....

4.2. Would you be interested in exploring strategies for incorporating responsible AI writing assistant use into your English curriculum?

.....

Thank you for your participation😊

Abstract:

The dynamic interaction between human language and artificial intelligence tools underscores the evolving landscape of communication and technology, as it affects healthcare, trade, economy, and education in particular. Thus, this study is undertaken to learn about these tools, their interaction with human language and how they affect EFL student' performance (Writing Skill). To conduct this investigation, a sample of both license and master students in the English language department at Ibn Khaldoun University of Tiaret is randomly selected. The investigation was carried out based on the relevant literature and data obtained through both qualitative and quantitative approaches. The findings revealed that students exhibit a mix of optimism and apprehension about AI writing assistants. While they recognize the tools' potential for improving writing efficiency and quality and their linguistic performance in general, Teachers similarly acknowledge the advantages but stress the importance of responsible use and the development of critical thinking skills.

Key words:

Interaction _ Human Language _ Artificial Intelligence _ Tools _ writing skill

ملخص :

التفاعل الديناميكي بين اللغة البشرية وأدوات الذكاء الاصطناعي يبرز المشهد المتطور للتواصل والتكنولوجيا، حيث يؤثر على الرعاية الصحية والتجارة والاقتصاد والتعليم بشكل خاص. وبالتالي، يتم إجراء هذه الدراسة للتعرف على هذه الأدوات وتفاعلها مع اللغة البشرية وكيف تؤثر على أداء طلاب اللغة الإنجليزية كلغة أجنبية (مهارة الكتابة). (لإجراء هذا التحقيق، يتم اختيار عينة عشوائية من طلاب الليسانس والماستر في قسم اللغة الإنجليزية بجامعة ابن خلدون بتيارت. تم إجراء التحقيق بناءً على الأدبيات والبيانات ذات الصلة التي تم الحصول عليها من خلال النهجين النوعي والكمي. كشفت النتائج أن الطلاب يظهرون مزيجًا من التفاؤل والريبة بشأن مساعدي الكتابة بالذكاء الاصطناعي. وبينما يدركون إمكانات الأدوات لتحسين كفاءة الكتابة وجودة أدائهم اللغوي بشكل عام، فإن المعلمين يقررون أيضًا بالمزايا ولكنهم يشددون على أهمية الاستخدام المسؤول وتطوير مهارات التفكير النقدي.

Résumé

L'interaction dynamique entre le langage humain et les outils d'intelligence artificielle met en évidence le paysage en constante évolution de la communication et de la technologie, affectant la santé, le commerce, l'économie et l'éducation en particulier. Ainsi, cette étude est entreprise pour en apprendre davantage sur ces outils, leur interaction avec le langage humain et leur impact sur les performances des étudiants en anglais langue étrangère (compétence en écriture). Pour mener cette enquête, un échantillon d'étudiants en licence et en master du département de langue anglaise de l'Université Ibn Khaldoun de Tiaret est sélectionné au hasard. L'enquête a été menée sur la base de la littérature pertinente et des données obtenues par des approches qualitative et quantitative. Les résultats ont révélé que les étudiants font preuve d'un mélange d'optimisme et d'appréhension à l'égard des assistants d'écriture basés sur l'IA. S'ils reconnaissent le potentiel des outils pour améliorer l'efficacité et la qualité de l'écriture et leurs performances linguistiques en général, les enseignants reconnaissent également les avantages, mais soulignent l'importance d'une utilisation responsable et du développement de la pensée critique