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Investigating the Impact of Grammarly as an Artificial Intelligence Powered Tool on English as a Foreign Language Students' Academic Writing: The Case of Master Two English Students at Mohamed Kheider Biskra University

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Declaration

I, Hayam **NOUARI**, solemnly declare that the present master's dissertation entitled “
Investigating the Impact of Grammarly as an Artificial Intelligence Powered Tool on English
as Foreign Language Students' Academic Writing : The Case of Master Two English
Students at Mohamed Kheider Biskra University” is my own work and has not been
submitted for the attainment of any academic degree or diplomat at any other university or
institution.

Dedication

First and foremost, I thank Allah for giving me the strength, patience, and guidance to
complete this journey.

To my beloved parents my mother, whose prayers carried me through every challenge, and
my father, whose support never wavered thank you for your endless love and sacrifices.

To my dear sister and brothers, your encouragement and belief in me meant more than words
can express, To my beloved niece Issou, whose joy and sweetness add coolers to my life, just
like sprinkles on a cupcake.

To my friends and my beloved people, thank you for standing by my side, for every word of
support, every smile, and every moment of laughter that made the hardest days easier.

To the fallen students of Gaza

You carried the weight of your dreams through broken streets,
held tight to your books as if they were shields,
and walked toward a future the world refused to let you reach.

You never got to hear your name called, never felt the pride of a graduation robe on your
shoulders.

But you earned a different kind of honor etched not on paper, but in the hearts of all who still
believe in justice,

in freedom, in the sacred right to learn. You are not forgotten.

You are the lesson the world must remember.

And in the silence you left behind, we must be the voice.

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Abstract

One of the main aims of modern education is to help students improve their academic skills by using up-to-date tools and resources. In recent years, many universities and teachers have started using Artificial Intelligence (AI) tools in their teaching methods to make learning more effective. This study focuses on exploring the impact of Grammarly, an AI-based writing tool, on the academic writing of Master Two students of English as foreign language at Mohamed Kheider University of Biskra. It also aims to understand how both students and teachers perceive the use of this tool in writing tasks. To achieve this goal, a qualitative approach was used, and data were collected through a questionnaire submitted to Master Two students and interviews of seven teachers of the writing skill. The results show that most students find Grammarly useful for improving grammar, vocabulary, and clarity in writing. However, both students and teachers believe that the tool has some limitations, especially in relation to developing ideas and critical thinking. In general, the findings suggest that Grammarly can be a helpful support in academic writing, but it should not replace teacher guidance.

Keywords: Grammarly, Academic Writing, EFL Students, AI Tools, Teachers' Perceptions

List of Abbreviations

AI: Artificial Intelligence

AW: Academic Writing

EFL: English as Foreign Language

ITS: Intelligent Tutoring Systems

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General Introduction

It is general and mitted that English has become lingua franca on a global scale. It not only constitutes an effective means of communication, but also an essential vehicle of education. Within this context, to learn the English language skills namely listening, speaking, reading and writing, represents an important component in achieving effective communication and language proficiency. However, academic writing in particular is an essential skill that helps students succeed in education and communicate effectively. It involves expressing ideas clearly and logically, using precise language, and supporting arguments with evidence from credible sources. This skill is important especially in tertiary education, where organizing complex ideas is necessary. Moreover, focusing on academic writing, improves students' critical thinking and communication skills.

Artificial Intelligence (AI) is becoming increasingly significant in education. Its effects are visible in enhancing educational opportunities and providing personalized learning resources. AI supports educational institutions by simplifying processes for teachers and students. This technology is transforming knowledge delivery and understanding, ensuring that students receive personalized assistance. As a result, AI is presently recognized as an essential element of contemporary teaching methods.

Additionally, developments in educational tools have notably affected the academic writing of EFL (English as a Foreign Language) students. Artificial Intelligence (AI) has played a key role in this transformation by providing personalized feedback and resources. These tools have changed how students approach writing tasks, offering support that helps them express their ideas clearly and effectively.

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Additionally, developments in educational tools have notably affected the academic writing of EFL (English as a Foreign Language) students. Artificial Intelligence (AI) has played a key role in this transformation by providing personalized feedback and resources. These tools have changed how students approach writing tasks, offering support that helps them express their ideas clearly and effectively.

2. Statement of the Problem

Academic writing is a critical skill for students in higher education, as it requires clear communication, organized ideas, and precise language. For English as a Foreign Language (EFL) students, mastering academic writing represents unique challenges, including difficulties with grammar, vocabulary, and coherence. Recently, it has been observed that EFL students may find it difficult to balance the advantages of AI assistance with the need to improve their own writing skills. Artificial Intelligence (AI) tools, such as grammar checkers, translators, and writing assistants, have become widely used resources for students aiming to improve their writing skills. However, there is limited research on how these AI tools can affect the academic writing improvements of EFL students.

While AI tools help EFL students by providing rapid corrections and suggestions, there is a risk that students may become overly dependent on them. As a result, the processes may slow down their long-term language development. Consequently, this study aims to investigate the impact of Grammarly as an AI Powered tool on EFL students' academic writing.

3. Significance of the Study

This study is important because it investigates how Grammarly as an AI tool affects academic writing. Understanding AI's role

- First it offers guidance for teachers on balancing AI tool use with independent learning activities, reducing dependency and promoting self-reliance in writing.
- Second it improves students' writing quality and confidence, which are important for academic achievement.

- Third it highlights the importance of using modern technology in language learning and preparing students for the digital world.
- Lastly it understanding AI's role in academic writing prepares students for future professional environments where AI tools are becoming increasingly used.

3. Research Questions

According to the aims of the study we come up with the following questions:

RQ1. Does Grammarly improve EFL students' academic writing?

RQ2. In what ways is Grammarly used as an AI tool to support academic writing among EFL students?

4. Research Hypothesis

RH1. We hypothesize that, the use of AI enhance tools EFL students' academic writing.

RH2. Using Grammarly as an AI tool helps EFL students improve the grammar and clarity of their academic writing.

5. Research Aims

The general aim of the current study is to investigate the impact of Grammarly as an AI tool on EFL students' academic writing. Precisely, the present study aims to realize the following aims:

- To assess how AI tools affect the academic writing quality of EFL students.
- To identify the different ways EFL students use AI in their academic writing, exploring various tools and methods.

6. Methodology

This study uses a qualitative approach to investigate the impact of Grammarly as an AI tool on EFL students' academic writing at Mohamed Kheider University of Biskra. This method is suitable because it helps us analyze students' experiences and opinions about using Grammarly in their writing.

7. Research Design

Data will be collected through an open-ended questionnaire administered to M2 EFL students to analyse their experiences with Grammarly as an AI tool, including benefits and challenges. Additionally, semi-structured interview will be conducted with academic writing teachers to investigate their opinions on how AI affects students' writing skills. The data from both the questionnaire and interview will be analysed for recurring themes, providing a clear understanding of AI's influence on EFL students' academic writing.

8. Population and Sampling Techniques

To collect data on how M2 EFL students perceive the use of AI in their academic writing, a sample of (29) students from Mohamed Kheider University will constitute the respondents of a questionnaire. Additionally, seven teachers of writing skill will be interviewed to share their views on the impact of AI on students' writing skill.

9. Research Tools

Questionnaire: to collect data with regard to students' experiences and perceptions of using AI in academic writing.

Interview: to investigate teachers' opinions on the impact of AI on students' writing skills.

10. Data Analysis Procedures

In order to analyze the data collected, Excel will be used for student data, and thematic analysis will be applied to teacher data.

11. Structure of the Dissertation

This study is divided into two main parts: the theoretical background and the fieldwork, which includes analysis, interpretation, and findings. The theoretical part is divided into two chapters. The first chapter focuses on academic writing, exploring its definition, history, and importance for EFL students. It reviews studies that look at the challenges EFL students face in academic writing and how AI tools can help improve their writing skill.

The second chapter focuses on Artificial intelligence, which represents the independent variable. This chapter defines AI and explains how it can support EFL students in improving their writing. It discusses the importance of Grammarly as an AI tool for enhancing writing skills and the challenges involved in using them. The chapter also explores different uses of AI and strategies that can help students with grammar, structure, and feedback.

Lastly, the third chapter outlines the rationale for choosing the data collection methods and data analysis procedures. It describes, summarizes, analyzes, and interprets the results to answer the research questions regarding the impact of AI on EFL students' academic writing.

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Chapter One: Academic Writing

Introduction

Academic writing is an essential skill in education and research, as it enables students and scholars to communicate their ideas clearly and effectively. It is a formal and structured type of writing that follows specific conventions to ensure clarity, coherence, and professionalism. Unlike casual or creative writing, academic writing requires objectivity, precision, and logical organization. However, mastering academic writing is not an easy task, as it demands critical thinking, strong argumentation, and adherence to grammatical and stylistic rules. Moreover, academic writing involves different genres, such as essays, research papers, and dissertations, each serving a distinct purpose in conveying knowledge and contributing to academic discussions. Furthermore, the writing process consists of multiple stages, including planning, drafting, revising, and editing, which help writers refine their work and enhance the quality of their arguments. Although academic writing can be challenging, particularly for EFL students, developing strong writing skills is crucial for academic success and future professional growth. By practicing and following structured approaches, students can improve their writing abilities and effectively engage in scholarly discourse.

1. Definition of Academic Writing

Academic writing is a formal type of writing used in educational settings. It includes different kinds of work, such as journal articles, dissertations, conference papers, research papers, and theses. The main purpose of academic writing is to meet the standards required by universities, colleges, conferences, and publications (Poudel, 2018). Hyland (2002) described academic writing as an act of identity that reflects the writer's representation.

Moreover, Bowker (2007) defined academic writing as “a special genre of writing that prescribes its own set of rules and practices” (p. 3). In other words, academic writing is a specific style of writing that follows clear rules and structured practices to ensure clarity, accuracy, and formality in presenting ideas and arguments. According to Klein (1965, as cited in Monippally & Pawar, 2010), academic writing is a structured intellectual activity that allows writers to express their ideas and viewpoints in a clear and logical manner. This means academic writing is a formal way of sharing ideas and opinions in a clear, organized, and logical structure.

2. Characteristics of Academic Writing

Academic writing is used in universities and research. It follows rules to keep it clear, formal, and well-structured. Writers use precise language, stay objective, and organize their ideas logically. Critical thinking is also important to analyze and evaluate information.

According to Ahmed (n.d.), academic writing can be complex and formal. It needs clear language, good planning, and organization. Writers must be patient, open-minded, and disciplined to create accurate work. These features help make academic writing reliable and valuable.

2.1. Formal Tone and Style

Academic writing uses a formal tone and style, which means avoiding informal language, slang, and casual expressions. Instead, it uses advanced vocabulary and well-structured sentences. The tone should be neutral and objective, without emotional language or personal opinions. This formality helps keep the writing serious and professional, making sure ideas are presented in a clear and credible way. (Rajiv Gandhi University,n.d.)

Academic writing is characterized by a formal tone, steering clear of informal expressions and casual language. Maintaining this level of formality strengthens the writer's credibility and professionalism. Additionally, adhering to specific citation styles, such as APA or Chicago, is essential for preserving a formal structure and properly crediting sources (Wong, 2016). In other words, academic writing demands a serious and objective tone that avoids informal language, emotional expressions, and personal opinions. Writers are expected to use precise vocabulary, carefully structured sentences, and recognized citation styles like APA or Chicago to ensure clarity and credibility. By maintaining this formal approach, academic writing upholds professionalism, strengthens the trustworthiness of the presented ideas, and meets the high standards expected in scholarly communication.

2.2. Clear and Precise Language

Academic writing must be clear and precise to effectively express ideas. This means using direct and specific language to avoid confusion. Words should be chosen carefully to ensure accuracy, and sentences should be simple and to the point. If technical terms are used, they should be explained the first time, and difficult words or jargon should be defined or avoided to help all readers understand the content. (Rajiv Gandhi University,n.d.) **Therefore**, academic writing needs to be clear and precise so that ideas are easy to understand. Writers should use simple and direct words to avoid confusion. It's important to choose the right expressions and keep sentences short and clear. If a difficult or technical word is used, it should be explained to help the reader grasp the meaning.

2.3. Objectivity and Impartiality

Academic writing should be neutral and fair. Writers should limit personal opinions and support their arguments with facts and logical reasoning. This objectivity improves the reliability of the work and helps readers trust the conclusions. Even when expressing a specific viewpoint, it is important to consider opposing arguments and respond to them fairly. (Rajiv Gandhi University,n.d.). Moreover, objectivity is a key aspect of academic writing, requiring authors to present information fairly and without personal bias. This impartial approach supports balanced discussions where evidence and logical reasoning are emphasized over personal views (Chauhan, 2022).

In other words, academic writing requires a neutral and balanced approach where personal opinions are limited and arguments are grounded in factual evidence and logical reasoning. Writers must strive to present information impartially, fairly addressing different perspectives while maintaining the credibility of their work. By prioritizing objectivity, academic writers enhance the trustworthiness of their conclusions and create a scholarly environment where ideas are evaluated based on evidence rather than personal opinions.

2.4. Structured Organization

A clear and organized structure is essential in academic writing. Most academic papers follow a standard format with an introduction, body, and conclusion. The introduction introduces the topic, presents the research question or thesis statement, provides background information, and explains the paper's purpose. The body includes the main content, divided into sections and subsections, each covering specific aspects of the topic. The conclusion summarizes key findings, highlights the importance of the study, and may suggest future research directions. This structured format helps readers follow the argument easily and

understand the flow of ideas. (Rajiv Gandhi University,n.d.). In other words, a well-organized structure is fundamental to academic writing, as it ensures that ideas are presented in a logical and coherent manner. By following a clear format introduction, body and conclusion; writers provide readers with a roadmap to understand the main arguments, evidence, and outcomes of the paper. This structure not only aids in the clarity of the content but also allows readers to easily follow the flow of ideas and grasp the significance of the research presented.

2.5. Critical Thinking and Analysis

An important aspect of academic writing is the use of critical thinking and analysis. This means not only presenting information but also evaluating and combining it to form well-informed conclusions. Writers should consider different perspectives, assess the reliability of sources, and present a balanced discussion that includes various viewpoints. Engaging critically with the topic leads to a deeper understanding and strengthens the overall analysis. (Rajiv Gandhi University, n.d.). In consequence, critical thinking is essential in academic writing because it goes beyond simply presenting information. It involves evaluating sources, considering multiple perspectives, and integrating different viewpoints to form well-reasoned conclusions. By engaging critically with the topic, writers not only enhance the depth of their analysis but also ensure that their work is well-documented and balanced, ultimately contributing to a more thorough and credible academic discussion.

3. Academic Writing Process

Academic writing follows a structured process to ensure clarity and logical flow. One key stage is the writing stage, where ideas are organized, drafted, and refined. This stage includes several important steps, such as planning, drafting, researching further if needed, revising, and editing. The table below outlines the key steps in the writing stage:

Table 1 **Stage of writing**

Writing stage	Steps
Plan	Organize ideas and structure
Draft	Write the first version
More Research	Gather additional information if needed
Refine position	Strengthen arguments and clarity
Re-position	Adjust thesis or key points
Redraft	Rewrite and improve the draft
Final Edit	Proofread and finalize the document

Note: Adapted from UTS Library (2013, p. 4)

3.1. Prewriting Stage

The prewriting stage is the first step in the writing process. It helps organize ideas before starting the actual writing. According to Oshima and Hogue (2007), “Prewriting is a way to get ideas. In this step, you choose a topic and collect ideas to explain the topic”(p.15). In other words, prewriting is the first step in writing where you think about what you want to write. During this step, you select a topic and gather ideas that will help you explain it. This can include brainstorming, making lists, or drawing diagrams to organize your thoughts before you start writing. According to Boston Architectural College (n.d.), preparing before drafting a paper helps writers explore and understand their topic better. Also, According to Al Bloushi and Al Shuraiaan (2024), the prewriting stage helps students get ready before they begin writing. During this phase, the teacher presents the topic and allows students to brainstorm and organize their ideas.

3.2. Planning

Planning is a key step in the writing process that helps writers organize their ideas before they begin. It involves deciding on the main points, arranging them logically, and considering how they will connect. A well-structured plan makes writing clearer, more focused, and easier for the reader to understand. Researchers in the field of writing studies emphasize that planning is a fundamental skill necessary for successful writing, as it enables writers to structure their ideas clearly and effectively (Hayes & Flower, 1990).

3.3. Drafting stage

Drafting helps organize ideas and develop arguments in writing. The first draft is a starting point, allowing for revisions to improve clarity and structure. Writing it early ensures better academic work through refinement. As stated by Al Bloushi and Al Shuraiaa (2024), this stage is important because students begin to write down their ideas and form their text. According to the University of Technology Sydney (2013), it is essential to start writing the first draft early. Therefore, the writing process requires multiple revisions to refine academic language and strengthen arguments with additional research or evidence. Each idea should be written separately and structured into well-organized paragraphs. Updating the outline helps maintain logical connections between sections.

3.4. Revising

According to Zemach and Rumisek (2005), the revising stage involves evaluating the structure and content of a text by reading it aloud or getting peer feedback. This process helps improve clarity, eliminate unnecessary details, and enhance logical flow. It is often called editing and can be repeated multiple times. Importantly, the revising stage is when writers check and improve their work. They review the structure and content by reading it aloud or

asking others for feedback. This helps make the writing clearer, remove unneeded details, and improve the flow of ideas.

3.5. Editing

Editing is the process of checking and improving writing. It helps correcting mistakes and makes the text clear and easy to read. According to Al Bloushi and Al Shuraiaan (2024), the final phase of the writing process consists of revising and editing to enhance the quality of the final draft. As cited by Utami et al. (2023), the final stage of writing involves checking spelling and punctuation, known as the mechanical aspects of a sentence. Before sharing their work, students should revise their drafts to enhance readability. An editorial checklist highlighting spelling errors can be beneficial for students in their future studies. Editing is an important step in the writing process that helps improve the quality of the text. It includes checking for spelling, punctuation, and grammar mistakes to make the writing clearer. Editing also helps students make their work easier to read before sharing it. Using a checklist can guide them to spot common errors and do better in future writing tasks.

4. Academic Writing Genres

Academic writing consists of different genres, each serving a specific purpose. Essays, research papers, theses, and dissertations are common forms that help students organize their ideas and present their knowledge effectively. These genres follow specific structures and writing conventions to ensure clarity, accuracy, and professionalism in academic work. According to Podolkova and Medvid (2019), developing strong English writing skills enhances students' academic performance and career prospects by helping them master different types of essays, key writing requirements, structural elements, and paragraph organization

4.1. Essay

According to Eunson (2012), an essay is a structured piece of writing that follows specific guidelines, techniques, and stylistic norms, all of which can be acquired and perfected over time. So, the essay is an organized form of writing that is determined by a set of rules and can be improved with practice. As stated by Kouicem (2018), an essay is regarded as a form of evaluated coursework in which students respond to a specific question to demonstrate their comprehension and academic progress. More specifically, an essay consists of multiple paragraphs that collectively address a single topic. On the whole, an essay is a type of coursework that is graded, where students answer a specific question to show their understanding and progress in learning. It is made up of several paragraphs that all focus on one main topic.

4.2. Research Paper

According to Wilson (2022), research paper is A special type of essay, whether based on one or multiple sources, that references, analyzes, and builds upon existing research on a specific subject essentially offering a new perspective or addition to an ongoing academic conversation. Simply, a research paper is a special type of essay that uses one or multiple sources to build on past studies. It discusses and adds new ideas to an existing academic topic. Notably, a research paper involves gathering information from various sources and is founded on the author's original study of a specific topic. It integrates expert perspectives, personal insights, and conclusions, all supported by expert opinions, evidence, data analysis, and interpretation of research findings (Shrestha et al., 2021).

4.3. Thesis and Dissertation

According to Felix and Smith (2019) “a dissertation is a piece of original research, undertaken as a part of a program of study” (p.2). As stated by Mehiri (2020), at the final stage of their academic journey, students conduct research by collecting and analyzing data. They then present a report on their findings, demonstrating both their acquired knowledge and the essential skills required to become professionals in their field. Simply put, a dissertation is a research project that students do at the end of their studies. They collect and study information, then write a report to show what they have learned and the skills they have gained.

5. Academic Writing Approaches

Academic writing follows different approaches to help students develop their writing skills effectively. According to Dragomir and Niculescu (2020), writing is a complex skill that needs to be broken down into key components to be properly understood, taught, and learned. The product-based approach focuses on the final text and emphasizes grammar and accuracy. The process approach prioritizes the steps of writing, such as planning, drafting, and revising. The genre approach considers the social purpose of writing and helps students follow specific structures based on different text types. Lastly, the process-genre approach combines elements of both process and genre methods to enhance writing skills by focusing on both structure and the writing process. Each approach plays a role in improving academic writing.

5.1. The Product Based Approach

The product-based approach is a way of teaching writing that focuses on the final piece of writing. In this approach, students follow a structured process that includes pre-writing,

drafting, and revising. The focus of this method is mainly on improving students' understanding of grammar and sentence structures (Tangpermpoon, 2008). Also, According to Romadloni (n.d.), the product-focused approach to teaching writing originates from the early twentieth-century Audio-Lingual Method. This approach perceives writing as a reflection of spoken language and prioritizes structural accuracy and grammatical correctness. In other words, the product-based approach to writing focuses on the final written work, students go through steps like planning, drafting, and editing, but the main goal is to produce correct grammar and sentence structure. It originates from traditional teaching methods, like the Audio-Lingual Method, which treated writing as a way to show correct language use, especially grammatical forms.

5.2. The Process Approach

Onozawa (2010) explains that process writing focuses more on how students develop their writing rather than just the final product. Writers follow several steps to shape their work, ensuring improvement along the way. Notably, the writing process typically includes three main steps: prewriting, drafting, and revising. However, some approaches expand this to four stages thinking, planning, writing, and editing (Onozawa, 2010). Indeed, the process of writing helps students improve their writing step by step instead of focusing only on the final result. They follow stages like prewriting to gather ideas, drafting to write, and revising to make improvements. Some methods add thinking and planning as extra steps. This approach helps writers organize their ideas and improve their work gradually.

Table 2 Comparison of Product and Process Approaches to Teaching Writing.

Product Based Approache	Process Based Approache
Learners copy sample texts	Learners compare their writing with a sample
Language structure is more important then idea	Ideas come first
One draft is written	Two or more drafts are written
Focus on accuracy and grammar	Focus on content and organazation
Writing is done individually	Writing is done in pairs or groups
Focus on the final product	Focus on the writing process and progress

This comparison shows that the Product Approach is more structured and focuses on grammatical accuracy, while the Process Approach encourages creativity and revision (Nguyen & Nguyen, 2023).

5.3. The Genre Approach

According to Utami et al. the genre approach is closely linked to social purposes and emphasizes the reader's perspective rather than the writer's. In this approach, students write texts based on genres introduced by their teacher. Learning happens through imitation and recognizing different patterns in writing. Another words, the genre approach focuses on social purposes and considers the reader's perspective more than the writer's. In this method, students learn to write by following specific genres presented by their teacher. They develop their writing skills through imitation and by identifying common patterns in different types of texts. As cited by Badger and White (2000), genre approaches, like product approaches,

consider writing primarily as a language skill. However, unlike product approaches, they highlight that writing differs based on the social context in which it is produced.

5.4. The Process-Genre Approach

Badger and White (2000) suggest combining the process and genre approaches to create what is known as the process-genre approach. They believe that writing should include language knowledge, an understanding of context, and a clear purpose, all of which come from the genre approach, along with writing techniques from the process approach. This method not only focuses on how writing is done and the quality of the final text but also on exploring the content and type of writing (Badger & White, 2000).

This schema represents key aspects of academic writing, based on Badger and White (2000).

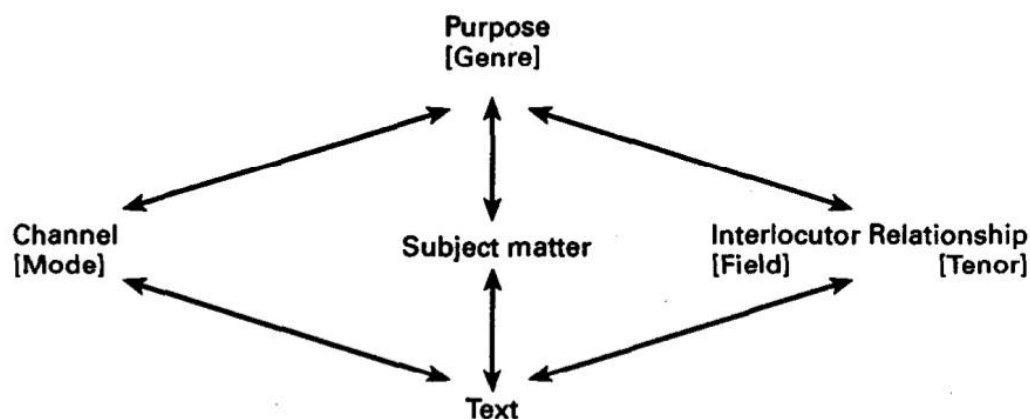


Figure 1 Key concepts of academic writing

Reprinted from Badger, R., & White, G. (2000)

The schema shows that writing is both a process (planning, drafting, revising) and genre-based (following specific structures and purposes). It highlights that good writing

depends on purpose, audience, communication mode, and subject matter. The Process Genre Approach combines these elements, helping writers develop clear and effective academic texts.

6. The Main Difficulties EFL Students Face in Academic Writing

Many studies have highlighted that academic writing is a complex and demanding task, requiring a combination of critical thinking, proper structure, and mastery of language conventions. Researchers argue that students often struggle with aspects such as coherence, argumentation, and adherence to formal writing standards. These challenges are particularly evident among EFL learners, who must navigate both linguistic and disciplinary expectations. Given these difficulties, various tools and strategies have been explored to support students in improving their academic writing skills. According to Mouri (2020) academic writing is the productive skill that seems the most challenging, even for native speakers of a language since it includes coherence, grammar structures, and appropriate mechanics. Nunan (1999) emphasized that producing well-structured writing is a difficult skill to master, even for native speakers, stating that “research on this issue indicates that creating a good piece of writing was considered a challenging skill, even in one’s native language” (as cited in Haghi & Pasand, 2012, p. 77). Therefore, writing is a difficult skill because it requires organizing ideas clearly and following specific rules. Even people who speak a language fluently can struggle to write well. This is because good writing is not just about knowing words it also involves thinking carefully, structuring sentences correctly, and expressing ideas clearly and logically.

In summary, academic writing plays a crucial role in education and research. It follows a structured process, including planning, drafting, revising, and editing, to ensure clarity and professionalism. Different academic writing genres, such as essays and research papers, help students express their ideas in an organized manner. Various approaches, including the product, process, and genre-based methods, provide strategies for developing strong writing skills. However, academic writing can be challenging, especially for EFL students, as it requires proper structure, coherence, and critical thinking. By practicing and following the right techniques, students can enhance their writing abilities and effectively communicate their ideas in academic settings.

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Chapter Two: Artificial Intelligence

Introduction

Artificial Intelligence, often abbreviated AI, is a kind of technology that allows machines to think, learn, and make decisions like humans. It plays an important role in many areas of life such as healthcare, transportation and, especially education. In the classroom, AI is used to improve learning by offering tools that support both teaching and studying. In education, AI helps students by giving them personalized feedback, adjusting lessons to fit their level, and making learning more interactive. One well-known example is Grammarly an AI-based writing tool that checks grammar, spelling, punctuation, and word choice. It assists students to improve their writing and become more confident in expressing their ideas. As AI continues to develop, it becomes a powerful aid in helping students reach their academic goals.

1. Definition of Artificial Intelligence (AI)

As cited in El Hadi (2023), intelligence is defined by Oxford Dictionaries as the ability to acquire and apply knowledge and skills, and by Wiktionary as the mental capacity to understand and apply facts and principles. Similarly, according to Wong (2019), artificial intelligence is more concerned with the underlying concept than with the term itself, even though the term is often the focus. Substituting “artificial intelligence” with phrases like “computer intelligence” or “machine intelligence” would not significantly change the fundamental issue. In the same vein, expressing it in another human language would still convey the same essential meaning. Moreover, "AI refers to systems that display intelligent behaviour by analysing their environment and taking action – with some degree of autonomy to achieve specific goals" (Boucher, 2020, p. 1).

2. Types of Artificial Intelligence (AI)

Artificial Intelligence (AI) can be categorized into different types based on their capabilities and level of advancement. Understanding these types helps explain how AI has evolved and what it can do in various fields, including education. According to Dhokare and Gaikwad (2021), the development of AI ranges from simple systems that react to specific inputs to more advanced systems that may one day understand human emotions. These categories include Reactive Machines, Limited Memory, Theory of Mind, and Self-Aware AI. Each type represents a step toward more intelligent and human-like behavior of machines. In the following sections, we explore each type in detail to understand how they function and what makes them unique.

2.1. Reactive Machines

According to Dhokare and Gaikwad (2021), reactive machines are the earliest types of AI, with very limited abilities. They try to act like humans by responding to different situations, but they don't have memory. This means they can't remember past experiences to help with tasks, so they cannot "learn." These machines can only react automatically to a small set of inputs. However, Reactive machines are AI systems that lack memory and are built to handle specific tasks. They can't remember past decisions or results, so they only operate based on the data they have at the moment. These systems rely on statistical mathematics and are capable of processing large amounts of data to generate outputs that appear intelligent (IBM Data and AI Team, 2023). Simply stated, reactive machines are limited in function, as they can only respond to specific inputs without learning from past experiences, making them effective for particular tasks but unable to improve over time.

2.2. Limited Memory

Limited Memory Artificial Intelligence refers to systems that can learn from historical data to make better decisions over time. Moreover, Limited Memory AI can use both present and recent information to make smart decisions. For example, in an educational setting, an AI-based tutoring system might track students' recent answers to understand which topics they struggle with. It then suggests practice questions based on that recent performance. However, it doesn't store the student's full learning history permanently. Instead, it uses short-term data to help in the moment. The more students use it, the better the system gets at giving helpful feedback (IBM Data and AI Team, 2023).

2.3. Theory of Mind

According to Dhokare and Gaikwad (2021), Theory of Mind AI is the next step in developing smarter AI systems. Researchers are working on it to help AI better understand people by recognizing their needs, feelings, beliefs, and ways of thinking. Ultimately, this advanced type of AI aims to interact more naturally and intelligently with humans by understanding their inner thoughts and emotions. In addition, according to Sahota (2024) Theory of Mind AI is about teaching machines to understand how people think and feel like their beliefs, wants, goals, and emotions. The goal is to help AI guess what a person might be thinking by going beyond regular AI and making it more understanding. This idea comes from psychology and how people understand each other in social situations. If AI can learn this, it could become better at talking to people, understanding what they need, and knowing how they might react.

2.4. Self-Aware

Self-awareness used to only apply to humans and living things, but now it's being talked about in machines too. In artificial intelligence and robots, self-awareness means that machines might one day be able to look at what they're doing, know what they can and can't do, and understand themselves (Dell'Aversana, 2024).

3. Evaluation of AI in Education

With the emergence of technology, education has experienced major changes in how teaching and learning take place. The rise of artificial intelligence has introduced new ways to support students and teachers. Evaluating AI in education helps us understand its impact and effectiveness in the learning process. Moreover, according to Saputra et al. (2024) the way we assess students has changed a lot. Now, it includes automation, personalized learning, and quick feedback. AI tools can look at a lot of information, not just test results but also how students behave like how they use online learning materials and react to different teaching methods.

3.1. Personalized Learning

Artificial intelligence enables the customization of education to suit each learner's pace, preferences, and abilities, which may enhance both academic performance and student involvement (Harry, 2023). In other words, AI helps create learning experiences that fit each student personally. It can adjust lessons based on how quickly a student learns, what they enjoy, and what they find difficult. By meeting individual needs, AI can boost students' academic results and keep them more motivated and involved in their studies.

3.2. Real-Time Feedback

The main aim of the system is to give students instant feedback by looking at both their thinking and emotions. It uses sentiment analysis to understand feelings and then gives helpful feedback based on the situation. (Prakash et al., 2024). In other words, the system combines emotional insight with cognitive analysis to offer students timely and personalized support that enhances their learning experience.

3.3. Adaptive Learning Platforms

According to Joshi (2024), artificial intelligence is very helpful in adaptive learning systems because of its smart technology. It uses machine learning to study a lot of information, like students' learning styles, how well they are doing, and the materials they use. **Additionally**, Akavova, Temirkhanova, and Lorsanova (2023) explain that adaptive learning is a way of teaching that changes based on what each student needs and how well they learn. It uses information about the student's skills and knowledge to provide lessons and tasks that match their level, helping them improve and reach their goals. In fact, an adaptive learning system is a smart teaching method that uses technology to understand each student's learning style, strengths, and weaknesses. It then gives personalized lessons and activities that match the student's level. Likewise, students get the support they need to learn better, feel more confident, and reach their learning goals at their own pace.

3.4. Intelligent Tutoring Systems (ITS)

Intelligent tutoring system acts like a teacher. It supports students in learning various subjects by providing lessons, asking questions, and giving instructions along with feedback to help them improve (Al-Azawei, Parslow, & Lundqvist, 2016). Moreover, according to Nwana (1990), intelligent tutoring systems are computer programs that use artificial intelligence to

teach effectively by understanding the subject, the learner, and the best way to deliver the lesson. In other words, an intelligent tutoring system is like a smart computer teacher. It helps students learn by giving them the right lessons, asking questions, and offering helpful feedback. It also tries to understand what the students know and the best way to teach them, making learning easier and more effective.

3.5. Virtual Assistants and Chatbots

According to Minz, Sha, et al (2023) Chatbots and virtual assistants are smart computer programs that talk with people using everyday language. They can answer questions, give information, and help do tasks automatically. Furthermore, using chatbots and virtual assistants in education helps improve the curriculum. They can also support special education by assisting students with disabilities and making learning easier and more comfortable for them (Goyal, Minz, & Sha, 2023). In other words, chatbots and virtual assistants are useful tools that make communication easier by using everyday language. In education, they can improve how lessons are planned and taught. They also give extra support to students with special needs, making learning more accessible and comfortable for everyone.

4. Importance of Artificial Intelligence in Language Learning

According to Khalil (2024), AI is greatly influencing education, especially in teaching English as a foreign language. It helps make learning better by giving quick feedback, adapting to each student's needs, and improving their overall learning experience. Besides, according to Kutsyk and Nykyporets (2024), research on how artificial intelligence (AI) affects language learning has brought useful and important insights. One of the key findings is that AI-powered tools can make learning more personalized. These tools can adjust the

learning material, the speed of lessons, and how hard the tasks are based on what each learner needs and prefers. It means that students can learn in a way that suits them best, which can help them understand better and stay more motivated during the learning process. So, the use of AI in language education is proving to be highly beneficial, as it not only supports students with instant feedback but also tailors the learning process to fit their individual needs and abilities. This personalized approach helps learners stay motivated, better understand the material, and ultimately achieve greater success in acquiring a new language.

5. Grammarly

Technology has quickly become an important element of our daily lives and has completely changed the way we do many things, including how we write and communicate. In fact, one of the most important parts of modern technology is Artificial Intelligence. AI is widely used in different fields such as healthcare, education, transportation, and especially in writing. Indeed, AI greatly helps people improve their texts by carefully checking for grammar mistakes, spelling errors, and the selection of better words or sentence structures. As a result, writing becomes easier, faster, and more accurate.

One popular AI tool that many people regularly use for writing is Grammarly. This tool constitutes a smart writing assistant that instantly checks the text and gives helpful suggestions to improve it. It carefully looks at grammar, punctuation, spelling, and even the tone of the writing. Grammarly is especially useful for students, teachers, and anyone who wants to write clearly and correctly. With Grammarly and other AI tools, technology is truly making writing simpler, helpful, and effective for everyone.

5.1. An Overview of Grammarly

Grammarly is an AI-powered writing tool designed to help users improve their English grammar and writing style. It was developed in 2009 by Max Lytvyn, Alex Shevchenko, and Dmitry Lider to make written communication clearer and more effective. According to Panel et al. (2024), Grammarly is a popular tool that helps writers, especially students, create clear and correct texts. It checks for grammar mistakes and gives helpful suggestions to improve writing. One of its useful features is changing casual writing into more formal academic style. It fixes things like wrong verb use, confusing sentence parts, and unclear phrases. Grammarly also gives feedback right away, so users can fix mistakes quickly and learn from them. Moreover, Grammarly offers two types of services: free and paid. The free version is good for individual use, but it has limited features. On the other hand, the paid version, called "Premium" or "Business," gives access to more tools and better services. The free grammar checker is helpful, but it doesn't include everything. The paid version has more advanced features and offers more support for improving writing (Fitria, 2021)

Grammarly, a widely used AI-powered writing assistant, is available in both a free and a premium version, each tailored to support users in enhancing their writing. The free version provides basic tools such as grammar and spelling correction, making it accessible and useful for many users, especially students. In fact, a large number of students tend to rely on the free version due to its generous range of features, which are available without the need for a paid subscription (Pane et al., 2024). On the other hand, the premium version offers more advanced functions, including vocabulary enhancement, tone adjustments, clarity improvements, and plagiarism detection, catering to more demanding writing needs.

5.2. Features of Grammarly

5.2.1. Grammar and Spelling Checks

Grammarly is a tool that helps check grammar and spelling mistakes. It automatically detects errors and provides suggestions for corrections, ensuring that the writing is accurate and clear.

This figure displays a grammar correction where Grammarly changes “less” to “fewer” because “projects” is a countable noun, and “fewer” is the proper word to use with countable items.

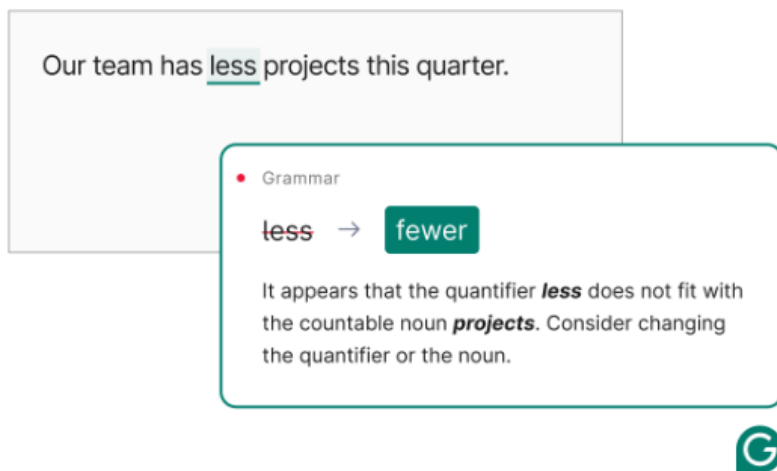


Figure 2 Free Grammar Checker Adopted from (Grammarly, n.d.)

5.2.2. Tone Detection and Adjustment

Grammarly Premium offers a feature called Tone Detection and Adjustment. It helps writers understand how their message might sound to readers—such as formal, friendly, or

confident. Based on the tone, it gives suggestions to improve the writing so it better fits the writer's purpose and audience. This helps users communicate more clearly and effectively.

This figure demonstrates Grammarly's tone suggestion feature. It analyzes the sentence and suggests a more confident version by removing uncertain words like "I think" and "sort of" to improve clarity and impact.

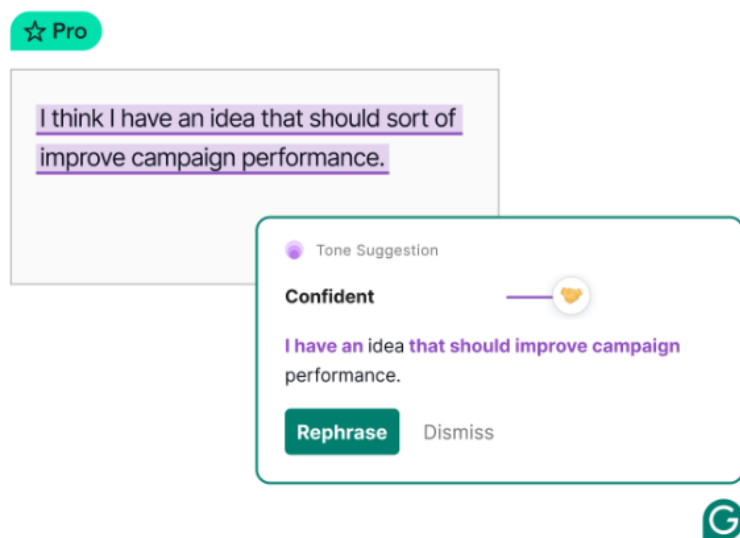


Figure 3 Tone Detection and Adjustment Adopted from (Grammarly, n.d.)

5.2.3. Fluency Suggestions

Grammarly Premium offers fluency suggestions to make writing sound smooth and natural. It helps improve sentence flow by fixing awkward phrasing or unnatural word choices. These suggestions make the text easier to read and more pleasant for the audience.

The following figure presents a fluency correction from Grammarly, where it suggests replacing "do" with "make" in the phrase "make progress," which is the correct and natural word combination in English.

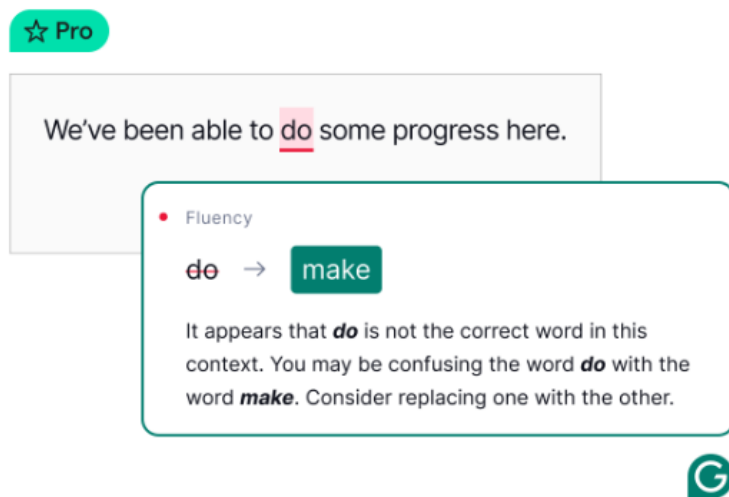


Figure 4 Fluency suggestions Adopted from (Grammarly, n.d.)

5.2.4. Plagiarism Detection

Plagiarism detection in Grammarly Premium is a powerful feature that helps ensure originality in academic writing. It scans your text against billions of web pages and academic databases to identify any potential instances of unoriginal content. For Master 2 EFL students this tool is especially helpful in maintaining academic integrity and avoiding unintentional plagiarism, all while supporting the development of authentic writing skills.

This figure shows Grammarly's plagiarism detection tool, which identifies that 17% of the document matches three external sources. It confirms that there is no AI-generated text, and it also provides a source for one of the matched texts.

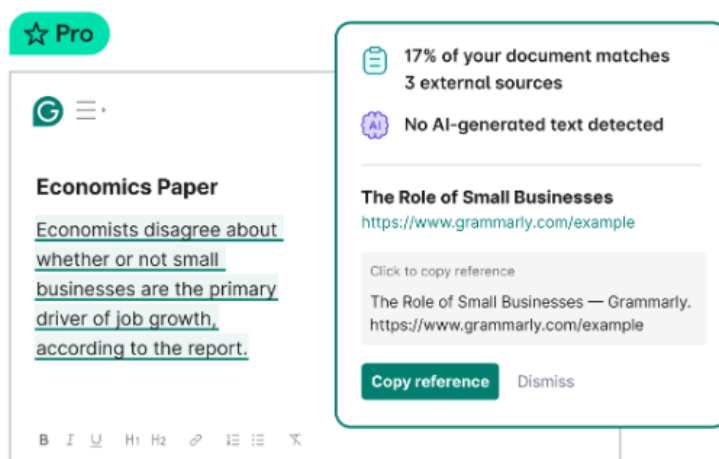


Figure 5 Plagiarism Detection Adopted from (Grammarly, n.d.)

5.2.5. Clarity Improvements

Clarity improvements in Grammarly Free help make your writing easier to read and understand. The tool checks for confusing or wordy sentences and suggests better ways to say them. This helps you write clearly and get your message across more effectively.

This figure shows Grammarly’s clarity suggestion by changing the phrase “is in need of” to the simpler word “needs.” This makes the sentence easier to read and more direct without changing its meaning.

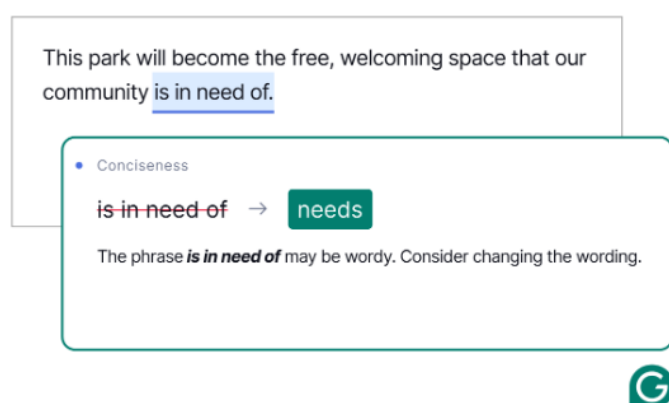


Figure 6 Clarity improvements Adopted from (Grammarly, n.d.)

5.3. The Integration of Grammarly into the Academic Writing Process

Using Grammarly in schools brings up important points about helping students build their own writing skills and understand how language works (Patty, 2022). Moreover, according to Raheem, Anjum, and Ghafar (2023) writing nowadays is very important in school, work, and everyday life. Because people want to write better and make fewer mistakes, they often look for helpful tools. As matter of fact, Grammarly uses AI to help improve writing. It checks grammar and writing style in an easy way, and many students,

workers, and writers use it to make their writing clearer. Furthermore, according to Setyowati, Priyambudi, and Wijayanti (2024) Grammarly and writing academic essays are closely connected, changing education by improving and influencing each other. Grammarly has become a popular AI tool that helps improve academic writing because of its smart features and ability to learn. It creates a personalized learning experience, making it easier to learn language and write more effectively. It offers solutions that make academic writing simpler and more user-friendly.

To sum up, Grammarly plays a key role in improving students' writing by offering personalized support and simplifying the writing process. Its AI-driven features help students enhance grammar, style, and clarity, making academic writing more efficient. This tool, therefore, not only aids in writing but also encourages a deeper understanding of language, benefiting students in both educational and professional settings.

6. 2. Benefits of Grammarly for Academic Writing

Grammarly is a helpful tool for students who want to improve their English writing skills. It uses smart technology AI to check what students write and when it finds grammar mistakes it gives quick suggestions to help fix them. This makes it easier for students to write correctly and learn from their errors. Grammarly follows language rules to give useful advice, which helps students become better writers over time (Arisandi & Sudarajat, 2023). Moreover, according to Octaberlina (2023) one benefit of using Grammarly is that it helps students pick the right words for their essays. It also improves their writing by offering tools that reduce mistakes and make their work clearer. On the whole, Grammarly it checks for mistakes and gives suggestions to make sentences clearer and more correct. By using it, students can learn how to avoid common errors and improve their word choice. This makes

their writing stronger and more organized. Over time, Grammarly helps students become more confident and skilled in writing English

7.2. Limitations and Challenges of Grammarly

Students also have some problems when using Grammarly. For example, they might rely too much on it, they still need to check their work by themselves. Indeed, the free version doesn't have all the tools, it sometimes can't tell the difference between tenses like simple past and simple present, and it often works slowly if the internet is not stable (Zuhriah, Fatoni, & Putri, 2024). Besides, according to Pane et al. (2024), Grammarly does come with certain limitations that users should carefully consider. One significant drawback is the need for users to critically evaluate the suggestions made by the tool, as these may not always correspond with the writer's intended meaning or the specific context of the writing. Therefore, users must decide whether to accept or reject the feedback. Lastly, Grammarly lacks the ability to assess the overall coherence and logical progression between sentences, making it less effective in evaluating the flow and structure of ideas.

Conclusion

Artificial Intelligence helps students improve their writing by giving fast and helpful feedback. Tools like Grammarly correct grammar, spelling, and word choice, making writing easier and clearer. Even though it is not perfect, Grammarly is useful when students use it as support, not as a full solution. AI can make learning more effective and help students become better writers.

Chapter Three

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Chapter Three: Methodology and Data Analysis

Introduction

In this chapter, the aim is to discuss the main purpose of this study, which is to understand how useful Grammarly is for improving academic writing among Master 2 EFL students. The study also explores how students actually use Grammarly and what they think about it. Moreover, it analyse teachers' opinions and their observations about Grammarly's effects on students' writing performance. This chapter also presents the results of the students' questionnaire and the teachers' interviews. Clearly, by the investigation of students' and teachers' views, tries to show whether Grammarly can really help students write better and become more independent in their academic writing.

1. Research Design

To deeply understand the role of Grammarly in enhancing EFL students' academic writing, this study adopts a qualitative research design. It aims to explore students' experiences, thoughts, and attitudes in a detailed and meaningful way. A case study approach is used to focus on a specific group of Master 2 EFL students in their real academic environment. To gather the necessary data, the study uses tools such as interviews and questionnaires. This design is suitable for capturing personal insights and providing a deeper understanding of Grammarly's impact on the students' writing process.

2. Population and Sample

The population for this study includes 29 Master 2 EFL students and 7 teachers of writing skill. The students were selected to complete a questionnaire, which aims to gather their views and experiences of using Grammarly in their academic writing. The writing

teachers were chosen to participate in interviews to provide their professional perspectives on how Grammarly affects students' writing performance. This combination of students and teachers offers a comprehensive view and ensures that the data collected reflects both the learners' experiences and the educators' observations.

3. Data collection Method

This study uses a qualitative research method to find out how Master 2 EFL students and writing teachers view the use of Grammarly in academic writing. Interviews with 7 writing teachers provide detailed opinions about Grammarly's impact, while an online questionnaire was submitted to 29 students to gather their personal experiences with the tool. The aim is to collect meaningful information that shows how Grammarly helps or challenges students in their writing.

3.1. Students Questionnaire

3.1.1. Description of Students' Questionnaire

An online questionnaire was created and shared with Master 2 English students at Mohamed Khidar University of Biskra. Out of 105 students, 29 responded. The questionnaire was unstructured, which means it included open-ended questions where students could freely share their thoughts and experiences.

The questionnaire was composed of two main sections:

Section One: Demographic Information

This section of the questionnaire aimed to collect general background information about the students. It included questions about their age, gender, and level of English

language proficiency. In addition, students were asked whether they use AI tools, especially in the context of academic writing. The goal of this section was to better understand the participants' profiles and how these factors might relate to their use of AI tools like Grammarly.

Section Two: Grammarly and Academic Writing

This part focused on students' use of Grammarly. It explored their opinions and experiences with Grammarly as a tool for academic writing. Students were asked how often they use it, how it helps them, and what they think about its impact on their writing skills. The purpose of this questionnaire was to understand how students feel about using AI tools like Grammarly in their academic writing process.

3.1.2. Validity of Instruments

To ensure the validity of the instruments used in this study, the questionnaire and the interview questions were carefully designed based on the research objectives. Moreover, the items were reviewed by experienced teachers and supervisors to check if they were clear, relevant, and appropriate for gathering accurate information. In addition, the questions were directly connected to the main themes of the study, such as the use of AI tools like Grammarly and their impact on academic writing. Therefore, this careful preparation helped ensure that the instruments measured what they were truly intended to measure.

3.1.3. Administration of the Questionnaire

The questionnaire was administered online on **February 11th, 2025**. It was shared with Master 2 English students at Mohamed Khidar University of Biskra through social media platforms and academic groups to ensure easy access. Students were given clear

instructions on how to complete the questionnaire, and they were encouraged to answer all the questions honestly. The online format made it easier to collect responses quickly and efficiently.

3.1.4. Analysis of Students' Questionnaire

Question 1: Age

Table 3 Age Distribution

Age	Frequency	Percentage
22-23	15	52%
24 or above	14	48%
Total	29	100 %

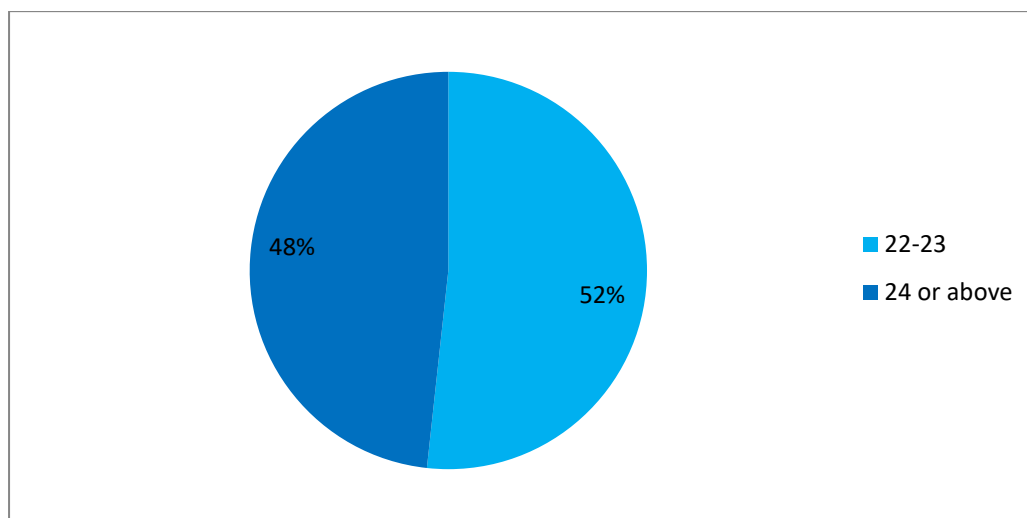


Figure 7 Age Distribution

The pie chart shows the age distribution of students who answered the questionnaire. It shows that most students were between 22 and 23 years old, making up 52% of the participants. In contrast, the other 48% were 24 years old or older. Clearly, this means that most students are in their early twenties. Moreover, there is also a good number of slightly

older students, which makes the age distribution fairly balanced. Therefore, the chart reflects a mix of young and slightly older participants, showing some diversity in age among the students.

Question 2: Gender

Table 4 Gender Distribution

Gender	Frequency	Percentage
Male	5	17%
Female	24	83%
Total	29	100%

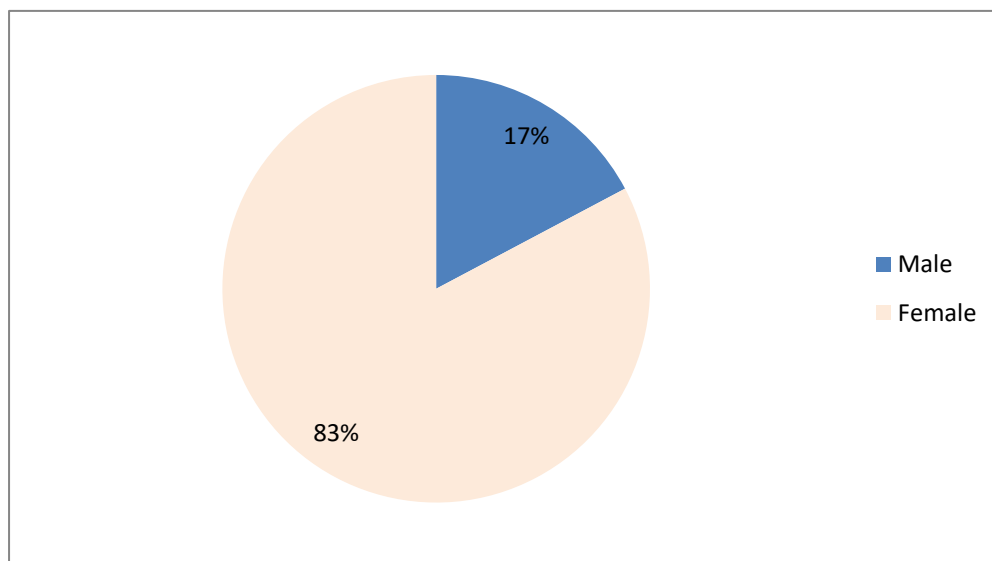


Figure 8 Gender Distribution

According to the pie chart, the majority of students who answered the questionnaire were female. They made up 83% of all participants, while only 17% were male. Clearly, most of the responses came from female students, and there were significantly fewer male students who took part in the study. Moreover, the chart highlights that females were the dominant

group in the questionnaire results. Therefore, it can be said that female students were much more represented in this study than male students.

Question 3: How would you rate your English proficiency level?

Table 5 Students' English Language Proficiency Level.

Proficiency level	Frequency	Percentage
Intermediate	2	7%
Upper-Intermediate	12	41%
Advanced	15	52%
Total	29	100%

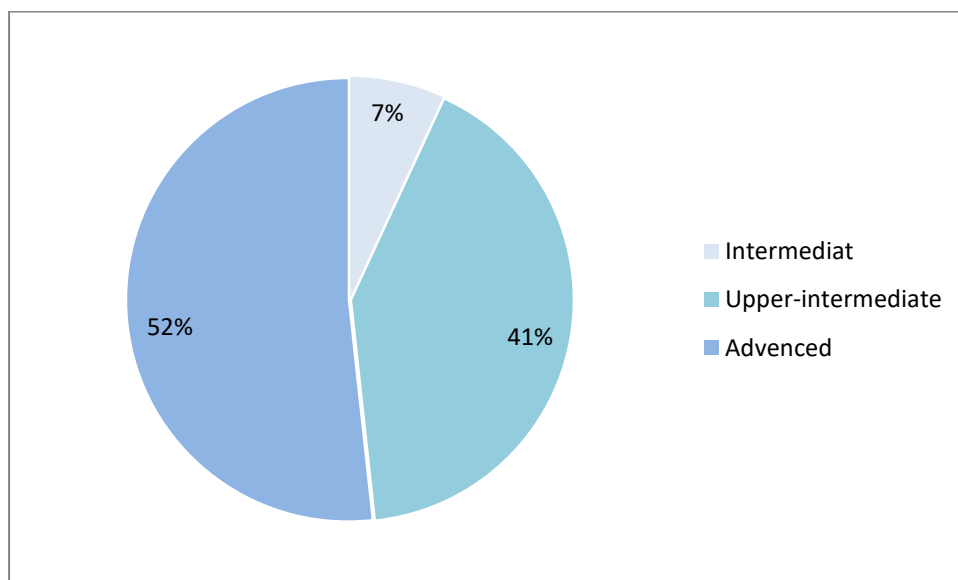


Figure 9 Students' English Language Proficiency Level

According to the figure, the M2 students' self-reported English language proficiency levels show that most of them believe they have strong English skills. About 52% of the students said they are at an advanced level. Moreover, 41% of them reported being at an upper-intermediate level, which also indicates a high level of proficiency. Only a small number of students, 7%, said they are at an intermediate level. Therefore, it can be concluded

that the majority of M2 students feel confident in their English abilities, with most placing themselves at either the advanced or upper-intermediate level.

Question 4: Have you ever used AI tools for academic writing?

Table 6 The Use of AI in Academic writing.

Options	Frequency	Percentage
Yes	27	93%
No	2	7%
Total	29	100%

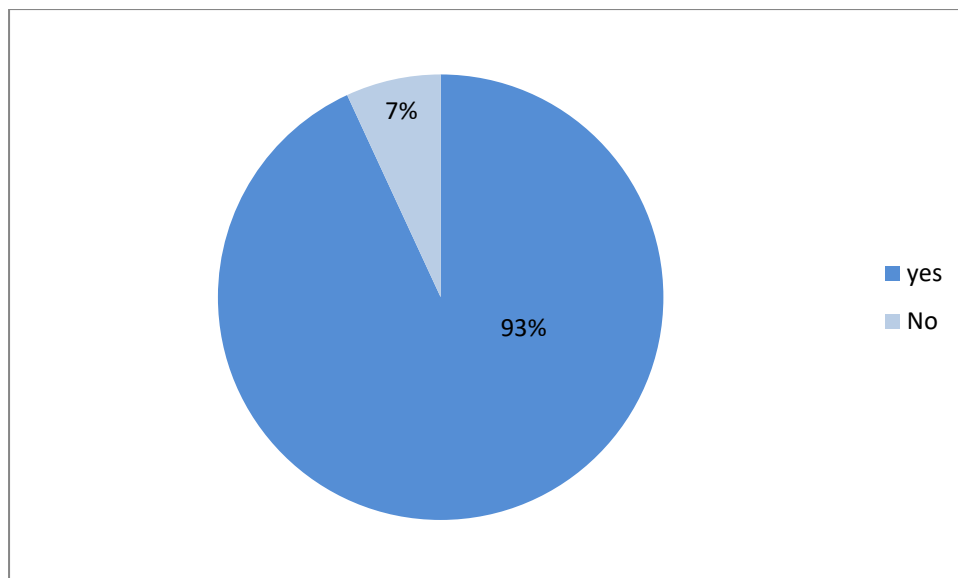


Figure 10 The Use of AI in Academic Writing

According to the figure, 93% of students reported using AI in their academic writing, while only 7% said they do not use it. This shows that the vast majority of these advanced-level students rely on AI tools to support their writing tasks such as editing, checking grammar, or improving their ideas. Moreover, the small number of students who do not use AI suggests that these tools have become very common and widely accepted among M2

students. Clearly, AI is seen as a helpful and important part of the writing process for most participants. Therefore, it can be said that AI plays a significant role in the academic writing of the majority of M2 students.

Question 5: Which aspects of your academic writing do you use Grammarly for?

Table 7 Functions of Grammarly Uses by Students

Options	Frequency	Percentage
Grammar and punctuation correction	13	45%
Vocabulary enhancement	3	10%
Sentence structure improvement	6	21%
Plagiarism detection	6	21%
Style and clarity enhancement	1	3%

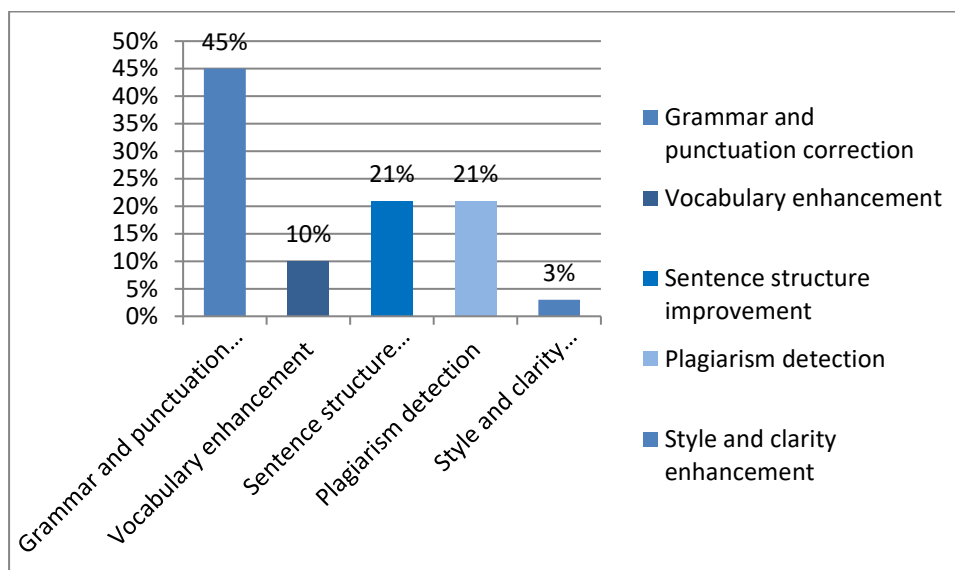


Figure 11 Function of Grammarly Used by Students

The figure, presented as a bar chart, illustrates which features of Grammarly are most frequently used by M2 students. The largest proportion, 45%, reported that they primarily use Grammarly to check grammar and punctuation. This indicates that the majority of these students heavily rely on the tool to correct fundamental writing errors. Moreover, 21% of the students stated that they use it to review sentence structure, while an equal percentage reported using it for plagiarism detection, suggesting that originality and coherence are also important concerns. Additionally, only 10% of the respondents said they use Grammarly to enhance their vocabulary. Notably, a very small fraction, just 3%, indicated that they utilize the tool for improving style and clarity. Therefore, while Grammarly provides a wide range of writing support features, it is evident that M2 students mainly focus on using it for basic error correction rather than for advanced writing enhancement.

Question 6: To what extent do you think Grammarly helps you improve your writing proficiency?

Table 8 Grammarly's Role in Improving Writing Proficiency

Options	Frequency	percentage
Not at all	2	7%
A little	5	17%
A lot	10	35%
Very much	12	41%
Total	29	100%

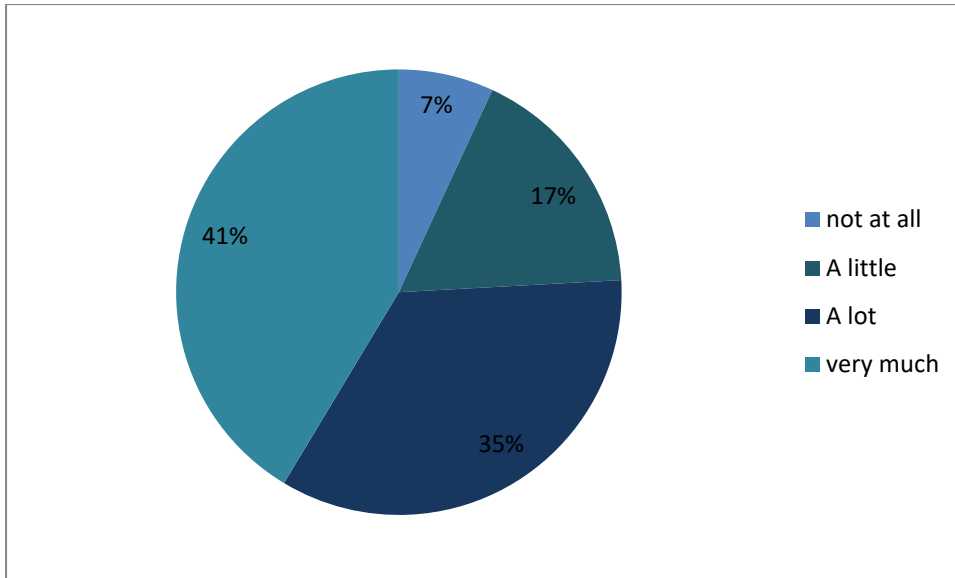


Figure 12 Grammarly's Role in Improving Writing Proficiency

The figure, presented as a pie chart, illustrates how much M2 students believe Grammarly helps them improve their writing. A small percentage of students (7%) selected "not at all," suggesting that while the majority find the tool useful, a few remain unconvinced of its benefits. Moreover, 17% reported that Grammarly helps them just a little. A larger group (35%) stated that it helps them a lot, while the highest percentage, 41%, said it helps them very much. These results indicate that most M2 students perceive Grammarly as having a significant and positive impact on their writing skills. Furthermore, many believe that the tool contributes clearly and effectively to enhancing the quality of their written work.

Question 7: Which aspects of your academic writing have improved the most due to AI tool?

Table 9 Aspects of Academic Writing Most Improved by AI Tools

Options	Frequency	Percentage
Grammar	10	45%
Vocabulary	6	21%
Coherence	7	24%
Content quality	6	21%
Total	29	100%

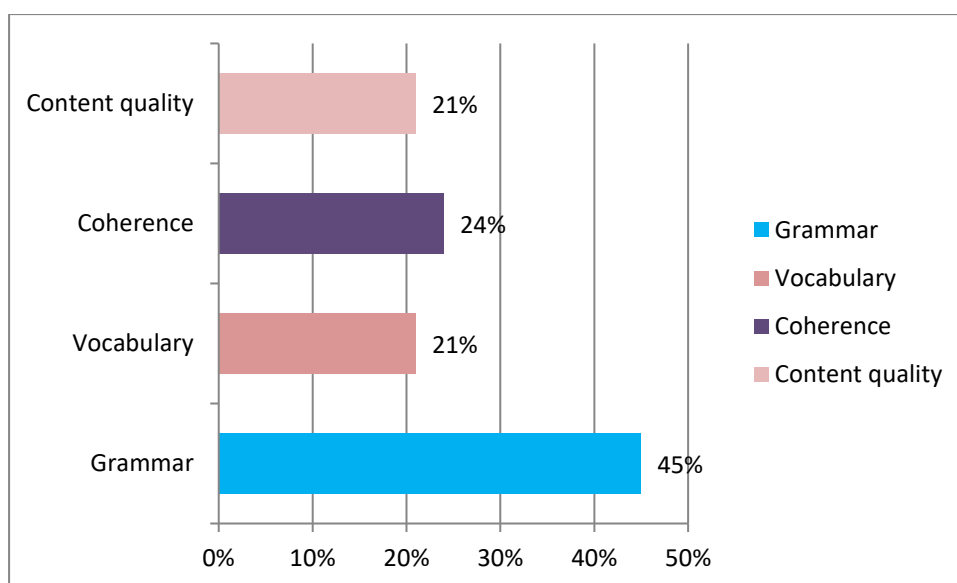


Figure 13 Aspects of Academic Writing Most Improved by AI Tools

The figure, presented as a bar chart, displays which aspects of academic writing M2 students believe have improved the most through the use of AI tools. The largest percentage, (45%), indicated that grammar was the area that showed the greatest improvement. This suggests that AI tools, such as Grammarly, are particularly effective in helping students correct grammatical errors and enhance the overall accuracy of their writing. Moreover, (24%) of the students reported that coherence the logical flow and connection of ideas was the aspect most positively affected. Additionally, (21%) of students said that both content quality and vocabulary had improved, indicating that AI tools also assist some learners in developing more meaningful ideas and selecting more appropriate or precise language. In

summary, while AI tools contribute to progress in various areas of writing, grammar is the component where most M2 students perceive the most significant improvement.

Question 8: Would you recommend Grammarly to other EFL students for improving academic writing?

Table 10 Recommendation of Grammarly for EFL Students

Options	Frequency	percentage
Yes	2	7%
No	27	93%
Total	29	100%

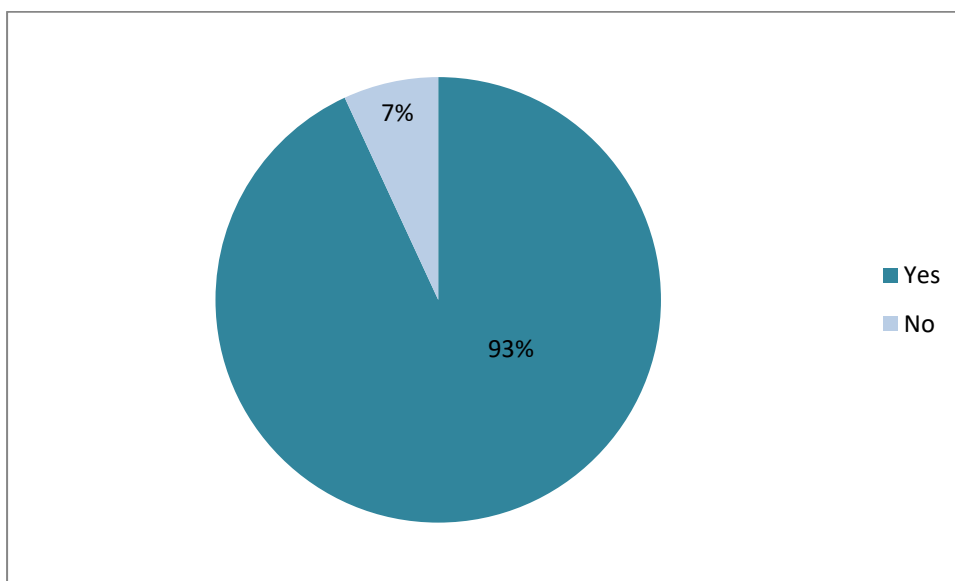


Figure 14 Recommendation of Grammarly for Other EFL Students

The figure shows that the majority of M2 students (93%) recommended Grammarly to other EFL students as a useful tool for improving academic writing, while only 7% responded negatively. This strong endorsement indicates that most participants find Grammarly to be an effective and supportive tool in enhancing their writing skills. Moreover, the high percentage of positive responses reflects students' trust in the tool's ability to improve key writing areas

such as grammar, sentence structure, vocabulary, and overall coherence. Furthermore, the minimal number of students who did not recommend it suggests that negative experiences with the tool are rare. In summary, Grammarly is widely regarded by M2 students as a reliable assistant AI tool for EFL learners aiming to strengthen their academic writing.

Question 9: What do you think are the strongest and weakest aspects of Grammarly's feedback on academic writing?

Table 11 Strengths and Weaknesses of Grammarly

Strongest Aspects	Weakest Aspects
-Correcting grammar effectively	-Doesn't understand nuances of academic writing
-Accuracy and comprehensiveness of feedback	-Focuses more on grammar than content quality
-Multiple functions: grammar, punctuation, spelling	-Lacks contextual understanding and oversimplifies ideas
-Catches grammar and spelling mistakes quickly and accurately	-Doesn't support citation styles well
-Improves grammar, clarity, and vocabulary	-May alter writing style too much
-Helps students learn from their mistakes	-Can cause overreliance on AI tools
-Enhances clarity in academic writing	-May weaken students' independent writing skills
-Promotes awareness of grammar rule	-Doesn't always provide accurate or helpful feedback
	-Best for basic errors, not complex stylistic/structural issues
	-Can make students mentally dependent or passive

The table shows the strongest and weakest aspects of Grammarly based on the answers of M2 students. Most students said that Grammarly is very helpful for correcting grammar and spelling. Moreover, they believe it improves clarity, vocabulary, and overall writing quality. In addition, some students mentioned that Grammarly helps them understand their mistakes and learn from them. However, the table also shows some weaknesses. For

example, students said that Grammarly does not always understand the context of academic writing. It may also change their writing style too much. Furthermore, some students think it focuses too much on grammar and does not help with content quality. Others worry that using Grammarly too much can make students depend on it and not improve their own writing skills.

Question 10: Do you believe Grammarly encourages you to learn from your mistakes, or do you simply accept the suggested corrections without reflection? Why?

Table 12 Grammarly's Role in Learning and Reflection

1-Belief in Grammarly's educational value	-Grammarly helps improve grammar and writing skills.
2-Learning from mistakes	-Grammarly encourages students to learn from their mistakes if used reflectively.
3-Active engagement with feedback	-Grammarly is helpful, but students must think critically about its suggestions to benefit from it.
4-Importance of critical thinking	-Accepting corrections without thinking won't help improve writing skills.
5-Real-time learning	-Grammarly supports improvement during writing, but may not always promote deep learning.
6-User-dependent learning	-Grammarly is useful when users take time to read explanations and understand their writing patterns.
7-AI's role in learning	-AI tools like Grammarly provide instant feedback and can improve writing through error correction.
8-Feedback engagement	-Grammarly helps when users understand the reasons behind changes, not just accept them blindly.
9-Grammarly as a tool for reflection	-It can be a learning tool, but only if students use it with reflection.
10-Self-reflection	-Grammarly shows what's wrong, but the student must take responsibility for learning.
11-Vocabulary development	-Grammarly gives useful suggestions to improve vocabulary and word choice.
12-Mindset and engagement	-Grammarly helps learning if users engage actively, but results depend on the user's mindset.
13-Critical use of AI	-AI tools are helpful but not perfect, so students should check suggestions carefully.

This table shows what M2 students think about using Grammarly as a learning tool. Many students said that Grammarly helps them improve their grammar and writing skills. Moreover, they believe it is useful for learning from their mistakes and improving vocabulary. In addition, some students said that Grammarly gives good feedback that helps them think about their writing and correct their errors. However, the students also said that Grammarly is not enough on its own. For example, if users just accept the corrections without thinking, they won't really learn. Furthermore, some students think that using Grammarly properly depends on the user's mindset. They said it works best when they take time to read and understand the suggestions. Also, they believe that AI tools like Grammarly can help, but users must still think critically and not depend on them too much.

3.2. Teachers' interview

3.2.1. Description of Teacher's Interview

To complement the data gathered from students and to gain a deeper understanding of the impact of Grammarly on academic writing, semi-structured interviews were conducted with seven teachers of academic writing at Mohamed Khidar University of Biskra. These teachers were selected based on their experience in teaching writing and their familiarity with students' use of AI tools. The interview aimed to collect rich, qualitative data from an expert point of view.

The interview was designed to explore the teachers' perspectives on Grammarly and its role in students' academic writing development. The questions were open-ended to allow teachers to express their opinions freely and in detail. Topics included their familiarity with Grammarly, their observations of students' writing performance, the advantages and

disadvantages of using Grammarly, and their views on whether students benefit from or depend on the tool. Moreover, the interview also investigated teachers' thoughts on the future role of AI tools in academic writing instruction. Therefore, the interview helped to provide a deeper and more professional insight into the influence of Grammarly in academic contexts.

3.2.2. Validity of the Interview

To ensure the validity of the interview instrument, the questions were created to align closely with the research aims. Moreover, they were reviewed by academic supervisors to confirm that they were appropriate, focused, and clear. In addition, the questions were directly related to key areas such as Grammarly use, writing improvement, and AI in education. As a result, the instrument was able to gather meaningful and trustworthy information that supports the objectives of the study.

3.2.3. Administration of the Interview

The administration of the interview took place on April 22, 2025. Different formats were used to collect responses from the teachers. Some teachers participated in the interview online, answering questions via a digital platform. Others, on the other hand, provided their responses through audio recordings. Additionally, a few teachers chose to answer the questions in written form. This approach allowed flexibility and ensured that all seven teachers could share their insights in the format that suited them best.

3.2.4. Analysis of Teachers' Interview

Question 1: How long have you been teaching English as a Foreign Language?

Table 13 Teacher's Teaching Experience in English as a Foreign Language

Teacher	Years of Experience
Teacher A	4 years
Teacher B	13 years
Teacher C	10 years
Teacher D	17 years
Teacher E	30 years
Teacher F	10 years
Teacher G	11 years

The responses reveal a range of teaching experiences among the seven teachers. The analysis shows three levels of experience. One teacher (Teacher A) is relatively new, with only 4 years of experience. Four teachers (Teachers B, C, F, and G) fall into the moderately experienced category, with teaching experience ranging from 10 to 13 years. Finally, two teachers (Teachers D and E) are highly experienced, having taught for 17 and 30 years, respectively. Most of the teachers reported their teaching experience starting from high school, while some began counting from middle school. This mix of experience levels and teaching contexts suggests a diverse group of educators, each likely bringing unique insights and methods to the classroom based on the length and setting of their careers.

Question 2: Can you describe your experience in teaching academic writing to EFL students?

Teacher A: A challenging experience as writing is so complex skill.

Teacher B: Good but challenging.

Teacher C: It is quite challenging and requires much more effort than teaching speaking or specialty courses.

Teacher D: It helped EFL students develop clear, structured academic writing through step-by-step guidance and focused feedback.

Teacher E: It is a beneficial one. I have been teaching this module more than 8 years. I have noticed that most learners find it interesting since it is related directly to their M2 dissertation writing. Moreover, an effective academic writer can do well even when taking exams in other modules. The transfer of knowledge is often what takes exams in other modules as well done.

Teacher F: Challenging, beneficial, and interesting in spite of the students' below-the-average level.

Teacher G: It's been a good experience. I always work to improve my teaching methods for better student outcomes.

The teachers' interview show that teaching academic writing to EFL students is seen as both challenging and valuable. Teacher A described it as a very challenging experience because writing is a complex skill. Teacher B also said it is good but challenging. Teacher C agreed, saying it needs more effort than teaching speaking or other courses. On the other hand, several teachers saw clear benefits in teaching writing. Teacher D said it helped students write in a more clear and structured way through step-by-step guidance and feedback. Teacher E found it beneficial because it supports students with their M2 dissertation writing and helps them do better in other modules too. Teacher E also noticed that students are more interested in academic writing when they see how it helps their final research. Teacher F described the experience as challenging, beneficial, and interesting, even though many students have weak writing levels. Teacher G said it has been a good experience and mentioned that they always try to improve their teaching methods to get better results. Overall, the responses show a mix of challenges, student difficulties, and teaching efforts, but all teachers agreed that academic writing is an important and helpful part of EFL education.

Question 3: What is your approach to teaching academic writing to EFL students?

Teacher A: A process approach where all the stages of the writing process are clearly elaborated to make a coherent production, free from mistakes. Also, it is a learner-centered approach where critical thinking is encouraged along with using peer feedback, SRKF and peer assessment.

Teacher B: Brief and short practices that end with larger pieces of writing with gradual feedback and formative assessment.

Teacher C: My approach is to guide students step by step, using clear examples, practice, and feedback.

Teacher D: In fact, it is not one approach but many. Starting from making them aware of the importance of AW to the didactic teaching aspect of teaching of detailed aspects of AW. These aspects, when well-taught, may help learners become effective academic writers.

Teacher E: Product + Process approaches.

Teacher F: I teach theory first then we move to practice, as students learn best through doing.

Teacher G: Process approach.

According to the responses, teachers use different approaches to teach academic writing. Teacher A focuses on a process approach, where each stage of writing is clearly explained to help students write well and avoid mistakes. They also encourage critical thinking and **peer** feedback. Teacher B prefers starting with short practice exercises and gradually moving to larger pieces of writing, using feedback and assessment along the way. Teacher C emphasizes guiding students step by step, using clear examples and providing practice and feedback. Teacher D uses multiple approaches, starting with helping students

understand the importance of academic writing, then moving to teaching its details to make students more effective writers. Teacher E combines the product and process approaches, focusing on both the final result and the steps needed to get there. Teacher F teaches theory first, then moves to practice, believing that students learn best by doing. Lastly, Teacher G focuses on the process approach, similar to Teacher A, and emphasizes the importance of guiding students through each step.

Question 4: Are you familiar with Grammarly? If yes, how did you first learn about it?

Teacher A: Yes, through social media (Facebook).

Teacher B: Yes, I am. I first discovered it when I used to prepare my grammar and writing lessons.

Teacher C: Yes.

Teacher D: Yes, I encountered it while using plagiarism checker tools.

Teacher E: Yes, through my M2 candidates. It is an AI tool that is used to correct different kinds of mistakes besides checking plagiarism.

Teacher F: Yes, through the web.

Teacher G: Yes, I learned about it through plagiarism detection tools.

From the responses, it's clear that the teachers are all familiar with Grammarly. Most of them learned about it through different online tools. Teacher A found it through social media (Facebook), while Teacher B first used it to prepare lessons for grammar and writing. Teacher C simply answered "Yes" without giving more details. Teachers D and G came across it while using plagiarism checker tools. Teacher E learned about it from their M2

candidates, and they explained that Grammarly is used to fix different kinds of mistakes, not just plagiarism. Teacher F found it through the web.

Question 5: Do you encourage your students to use Grammarly?

Teacher A: Yes and always.

Teacher B: Yes, I do as I find it very beneficial.

Teacher C: Usually yes.

Teacher D: Yes, I do, with conditions.

Teacher E: Yes.

Teacher F: As a revising tool, yes.

Teacher G: No, because it may cause over-reliance and limit their development.

Most teachers encourage their students to use Grammarly, with some adding that it's very beneficial for improving writing. Teacher A and Teacher B strongly support it, with Teacher B saying it's very helpful. Teacher C usually agrees but doesn't always encourage it. Teacher D supports its use but with conditions. Teacher E simply says "yes," while Teacher F sees it as a useful revising tool. However, Teacher G does not encourage its use, as they feel it might make students too dependent on the tool and prevent them from developing their writing skills.

Question 6: Based on your observation, how has Grammarly influenced students' writing skills on terms of grammar, vocabulary, and coherence?

Teacher A: It influences them positively, especially in grammar and vocabulary.

Teacher B: In general, it had a positive influence and improved their writing as students can see their grammatical errors corrected along with some explanations provided. As for vocabulary, the app suggests synonyms and alternatives to repetitions in addition to appropriate vocabulary that goes with formal or academic style. For coherence, the app helps with proofreading as it corrects or recommends better transitions. Also, it corrects unclear or poorly formulated sentences. However, I noticed that some students use it automatically as an easy means without trying to work by themselves.

Teacher C: I don't have specific data, but I believe it might be helpful if students pay attention to corrected mistakes.

Teacher D: Grammarly has helped students reduce grammar mistakes, improve vocabulary usage, and write more coherent sentences.

Teacher E: If it is well-used, it may influence their writing skills. It depends on learners whether they want to benefit from this tool or just finish successfully a given task or homework.

Teacher F: It helps them polish their drafts autonomously and have quick and effective feedback.

Teacher G: It helps with grammar correction, vocabulary improvement, and overall clarity in writing.

According to the teachers, Grammarly has a positive influence on students' writing, especially in grammar and vocabulary. Teacher A noted that it helps students with both areas. Teacher B explained that it not only corrects grammar but also suggests synonyms and

vocabulary suitable for academic writing. It also helps with coherence by recommending better transitions and improving sentence structure, though Teacher B mentioned some students may rely on it too much and not try to improve on their own.

Teacher D also observed that Grammarly helps reduce grammar mistakes, improves vocabulary, and makes writing more coherent. However, Teacher E said that whether it helps depends on how well students use it some might just use it to finish tasks without really learning from it. Teacher F said that Grammarly helps students improve their drafts by providing quick feedback and making their revisions easier. Teacher G also confirmed that it helps with grammar, vocabulary, and clarity.

Question 7: do you think Grammarly helps students become more independent writers, or fo they become overly reliant on it?

Teacher A: It depends on the learner.

Teacher B: If used critically and effectively, it can help students become more autonomous as it raises their awareness of common errors, provides explanations, presents only correct forms, provides reliable feedback, and encourages revision. On the other hand, students can become overly reliant if they use this app expecting it to fix everything. Students, thus, become passive learners who just write down the suggestions or corrections without trying to understand them. So they will tend to skip the "planning and revision" stages and would simply rely on Grammarly to polish their work. Also, they would use vocabulary without necessarily understanding them.

Teacher C: They become more independent, but learning from mistakes is not guaranteed.

Teacher D: Grammarly can support students in becoming more independent writers by offering feedback and strengthening their confidence in writing, but some may become overly reliant if they use it without trying to learn from the suggestions.

Teacher E: If it is well-used, they may become autonomous writers. However, if it is used wrongly, they will become reliant on it and will not improve their writing skills.

Teacher F: It helps them become more autonomous when they use it as a revising tool after writing their own drafts.

Teacher G: They often become overly reliant on it, as it gives them ready-made corrections.

Most teachers agree that **Grammarly can help students become more independent writers**, but it **depends on how the students use it**. Teacher A said it depends on the learner. Teacher B explained that if students use Grammarly carefully and understand the corrections, it can help them improve. However, if students rely on it too much, they may stop trying to understand their mistakes and skip important steps like planning and revising.

Teacher C thinks that while students can become more independent, they may not always learn from their mistakes. Teacher D believes that Grammarly can help boost students' confidence and make them more independent, but some students may become too reliant on it if they don't try to learn from the suggestions. Teacher E said that when Grammarly is used well, students can become independent writers, but if they misuse it, they might rely on it too much and not improve their writing. Teacher F mentioned that using Grammarly as a revising tool after writing drafts helps students become more independent. However, Teacher G pointed out that some students become overly reliant on Grammarly because it provides ready-made corrections.

Question 8: Have you noticed any improvement in students writing after using Grammarly?

Teacher A: In some aspects of writing as grammar and vocabulary, however, they still suffer from organization, mechanics...

Teacher B: Yes

Teacher C: I haven't conducted research on this, but it might be helpful.

Teacher D: Yes, I have noticed improvement in grammar accuracy and vocabulary use, though coherence still often needs direct teaching and practice.

Teacher E: Only a minority managed to improve their writing skills thanks to Grammarly. However, a great majority use it as any other material that may help to submit their tasks or homework before the deadline.

Teacher F: Yes, I have noticed that students make fewer grammatical and spelling mistakes, and their writing has become clearer and more coherent.

Teacher G: Yes, especially in vocabulary and grammar.

Most teachers noticed that Grammarly helps improve certain aspects of students' writing, especially grammar and vocabulary. Teacher A pointed out that while grammar and vocabulary improve, students still struggle with organization and mechanics. Teacher B simply said "Yes," showing agreement. Teacher C didn't conduct research but thinks it could be helpful. Teacher D saw improvements in grammar accuracy and vocabulary but noted that coherence still needs more teaching and practice. Teacher E mentioned that only a few students really improved with Grammarly, while many others just used it to finish their work

on time. Teacher F observed that Grammarly helped students make fewer grammatical and spelling mistakes, and their writing became clearer and more **coherent**. Finally, Teacher G also saw improvements, especially in vocabulary and grammar.

Question 9: How does Grammarly compare to traditional feedback methods in improving students writing skills?

Teacher A: Traditional feedback remains better in the way you know the source or the cause of the problem or mistake.

Teacher B: Grammarly is always and easily accessible, whereas traditional feedback is limited and may take a long time to be provided.

Grammarly mainly focuses on form including grammar, structure, vocabulary, clarity.

Traditional feedback covers content, organization, and ideas.

In fact, both ways are good and useful because writing needs all these points to be covered.

Teacher C: Grammarly usually gives surface-level corrections which is not enough, but it promotes noticing. Traditional feedback promotes deeper learning through discussion, modeling, etc.

Teacher D: Grammarly encourages autonomy, independent practice, and self-editing compared to traditional feedback, which relies on the teacher.

In fact, both methods can be used together. Teachers have to teach students how to reflect on Grammarly's suggestions by using their critical thinking and not just accepting them.

Teacher E: More automated and personalized.

Teacher F: Grammarly offers instant, accessible feedback, which helps with surface-level issues like grammar and word choice, but traditional feedback is more effective for deeper writing skills like organization, argumentation, and critical thinking.

Teacher G: Grammarly does not explain why the mistake is made and how to avoid it next time. It only fixes the error. In contrast, traditional feedback, made by teachers, is more constructive and informative. Learners may learn and even avoid mistakes subsequently.

Most teachers agree that both Grammarly and traditional feedback have their strengths. Grammarly is quick, accessible, and focuses on surface-level issues like grammar, vocabulary, and clarity. Teachers feel that it helps with autonomy and independent practice (Teacher D), but it often lacks depth. Traditional feedback, on the other hand, is more detailed and focuses on deeper aspects like organization, content, and critical thinking. It also helps students understand the cause of their mistakes and encourages more discussion and modeling (Teacher C). Some teachers pointed out that Grammarly can be more automated and personalized (Teacher E), but it may not explain the reasons behind errors like traditional feedback does (Teacher G). While Grammarly helps with surface-level issues, traditional feedback is seen as better for developing overall writing skills, especially in areas like organization and argumentation (Teacher F). In conclusion, teachers feel that both methods are valuable but for different purposes Grammarly is great for quick feedback, while traditional feedback offers more comprehensive and constructive learning.

4. Synthesis and Discussion of the Findings

In this part of the chapter, the main results collected from the students' questionnaire and the teachers' interviews are thoroughly analysed .the discussion focuses on how students use Grammarly and how it affects their academic writing. I will also talk about the teachers'

opinions and what they have noticed in their students' writing after using Grammarly is deeply scrutinized. Moreover, a comparative study in terms of similarities and differences- of the views of both students and teachers will be undertaken.

4.1. Discussion of the Students' Questionnaire

The questionnaire showed that most students use Grammarly in their academic writing. In fact, 93% of the students said they use AI tools like Grammarly. Most of them use it to correct grammar and punctuation mistakes. Moreover, many students also use it to improve their sentence structure and check for plagiarism. A smaller number of students use it to improve vocabulary or writing style. When students were asked how much Grammarly helped them, most gave positive answers. Around 76% of the students said it helped them “a lot” or “very much.” This means that Grammarly had a strong and helpful effect on their writing.

In addition, students said that grammar was the part of writing that improved the most. Some students also saw improvement in coherence, vocabulary, and content. Almost all students (93%) said they would recommend Grammarly to other EFL students. This shows that they trust the tool and find it useful for their academic writing. However, some students also indicated about problems with Grammarly. For example, they said that it does not always understand academic writing well. Some students also said it changes their writing style too much.

Few students said that they actually depend on Grammarly too much, instead of learning how to correct their own mistakes. Students gave mixed answers about whether Grammarly helps them learn from their mistakes. Some said that Grammarly teaches them and helps them understand what they did wrong. Others said they just accept the corrections

without thinking. Therefore, Grammarly is most helpful when students use it with care and take time to read and reflect on the suggestions.

4.2. Discussion of the Teachers' Interview

The teachers interviewed had different levels of experience, from 4 to 30 years of teaching. All teachers said that teaching academic writing is difficult but very important. Most of them use a process approach, where they teach students how to write step by step and give regular feedback. All seven teachers recognized they are familiar with Grammarly. Moreover, most of them assested they encourage students to use it. They believe Grammarly helps students correct grammar and spelling mistakes.

In addition, some teachers indicated that it improves vocabulary and helps students make clearer and more coherent sentences. However, some teachers also noticed that not all students use Grammarly the right way. Andeed, few students use it just to finish tasks quickly, without trying to understand the corrections. Therefore, teachers showed that Grammarly can help students become independent writers but only if they use it wisely. If students just accept every correction without thinking, they might become too dependent on the tool and stop learning how to improve their work.

When teachers were asked to compare Grammarly to traditional teacher feedback, most affirmed that both are helpful in different ways. Grammarly is fast and always available, it is also good for fixing surface-level mistakes, like grammar and vocabulary. However, traditional feedback from teachers is better for deeper learning it helps students improve their ideas, structure, and critical thinking. Moreover, teacher feedback explains the reason or sources of mistakes, while Grammarly only corrects them. In short, most teachers agreed that

Grammarly can support writing improvement, but students still need teacher guidance, and must think carefully about corrections.

Conclusion

In conclusion, the study aimed to explore the role of Grammarly in helping EFL students with their academic writing. It focused not only on how students use the tool, but also on what teachers think about it. Moreover, this chapter deeply investigated whether Grammarly truly supports students in improving their grammar, vocabulary, and overall writing quality. In addition, this chapter studied the advantages of Grammarly like to learn from the tool, and the drawbacks such as become too dependent on it. Lastly, this chapter helped highlight the usefulness of Grammarly in the development of the writing skill in an EFL context.

General Conclusion

This study aimed to explore the effect of using Grammarly, an AI-based writing tool, on the academic writing performance of Master 2 EFL students at Mohamed Kheidar University of Biskra. The issue is important because academic writing is a complex skill that many students find challenging, especially those learning English as a foreign language. A large number of students often face difficulties in mastering correct grammar, vocabulary, and overall clarity in writing. With the rapid development of technology, tools like Grammarly have become widely available and can potentially offer significant support in overcoming these challenges. This research sought to understand how students use Grammarly, the specific ways it helps them improve their writing, and the perceptions of both students and teachers regarding its advantages and limitations. To gather data and insights, the study adopted a qualitative research approach. Information was collected through a questionnaire completed by 29 Master 2 students and interviews conducted with 7 teachers of writing skill. The findings revealed that Grammarly effectively improves students' grammar, spelling, and word choice; especially the clarity of their written product, and confidence in themselves. Besides, some participants mentioned that Grammarly encouraged them to become more independent writers because they learned to recognize and correct their own mistakes over time.

En general, the results demonstrate that Grammarly is a useful tool for supporting academic writing in the EFL classroom. It provides immediate and helpful feedback, allowing students to identify and fix errors quickly. This instant correction helps students avoid repeating the same mistakes and builds their confidence in writing. However, both students and teachers agreed that Grammarly alone is not sufficient for mastering academic writing. While it excels at correcting surface-level errors such as grammar and spelling, it does not effectively address deeper writing skills, such as organizing ideas logically,

developing strong arguments, or improving overall coherence and style. Additionally, some students may become overly dependent on Grammarly, using it to fix errors without fully understanding the corrections or learning from their mistakes.

Limitations of the Study

This research faced several challenges and limitations that affected the overall scope and depth of the study:

❖ First, the study relied solely on the free version of Grammarly. Because of this, many important features were not accessible, such as tone suggestions, plagiarism detection, and fluency improvement tips. These advanced tools could have provided more comprehensive support to students and may have influenced the results if available. Therefore, the findings of this study are limited to the capabilities of the free Grammarly version, which offers basic grammar and spelling corrections only.

❖ Second, collecting data from teachers was difficult. Some teachers did not respond to interview requests, while others agreed to participate but refused to be recorded. This limited the researcher's ability to gather full and detailed information during the interviews. The absence of recorded data made it harder to analyze teachers' opinions thoroughly and may have reduced the richness of the findings related to instructional practices and perceptions of Grammarly.

Pedagogical Implications and Recommendations

The findings of this study provide valuable insights and suggestions for improving the teaching of academic writing to EFL students using AI tools like Grammarly:

❖ Future researchers are encouraged to conduct experimental or longitudinal studies that track students' writing progress over time while using Grammarly. Such studies would offer a deeper understanding of the long-term effects and benefits of Grammarly on students' writing skills and academic performance.

❖ Teachers should integrate Grammarly as a supportive resource within writing instruction rather than relying on it solely as a correction tool. It is important for teachers to encourage students to reflect on their errors and understand the reasons behind corrections. This approach can promote better learning and help students develop stronger, more independent writing skills.

❖ University administrators and decision-makers should focus on improving digital infrastructure and providing adequate training programs for both teachers and students. Enhancing access to reliable internet, up-to-date devices, and comprehensive training will enable more effective use of AI tools like Grammarly in academic writing classes. This support can help maximize the positive impact of such technologies in the learning process.

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Appendices

Appendix A: Students Questionnaire

Appendix B: Teachers Interview

Questionnaire Investigating the impact of Grammarly as an AI Writing tool on EFL Students' Academic Writing Proficiency: The Case of Master Two English Students at Mohamed Khaider Biskra University

Thank you for taking part in this research study, which explores how Master Two EFL students use AI in academic writing. Please answer the following questions based on your personal experiences. Your responses will remain confidential and will only be used for academic research purposes.

- **Demographic Information :**

1- Age

☐ 21-22

☐ 24 or above

2- Gender

☐ Male

☐ Female

- **Grammarly and Academic Writing:**

1-How would you rate your English proficiency level ?

☐ Beginner

☐ Intermediate

☐ Advanced

2- Have you ever used AI tools for academic writing?

☐ Yes

☐ No

3- Which aspects of your academic writing do you use Grammarly for?

☐ Grammar and punctuation correction

- ☐ Vocabulary enhancement
- ☐ Sentence structure improvement
- ☐ Plagiarism detection
- ☐ Style and clarity enhancement
- ☐ Other (please specify)

4- To what extent do you think Grammarly helps you improve your writing proficiency?

- ☐ Not at all
- ☐ A little
- ☐ A lot
- ☐ Very much

5- Which aspects of your academic writing have improved the most due to AI tool

- ☐ Grammar
- ☐ Vocabulary
- ☐ Coherence
- ☐ Content quality

6- Would you recommend Grammarly to other EFL students for improving academic writing?

- ☐ Yes
- ☐ No

7- What do you think are the strongest and weakest aspects of Grammarly's feedback on academic writing?

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8- Do you believe Grammarly encourages you to learn from your mistakes, or do you simply accept the suggested corrections without reflection? Why?

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Investigating the impact of Grammarly as an AI Writing tool on EFL Students' Academic Writing Proficiency: The Case of Master Two English Students at Mohamed KhaiderBiskra University

Dear Teachers,

I am a Master 2 student currently conducting research on **investigating the impact of Grammarly as an AI tool on EFL students' academic writing**. As part of my dissertation, I kindly invite you to take part in a brief online interview. Your insights and experiences would greatly contribute to the depth and quality of my study. Please be assured that your responses will be used strictly for academic purposes and will remain confidential.

Thank you very much for your time and support.

1. How long have you been teaching English as a Foreign Language?

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2. Can you describe your experience in teaching academic writing to EFL students?

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3. What is your approach to teaching academic writing to EFL students?

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4. Are you familiar with Grammarly? If yes, how did you first learn about it?

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5. Do you encourage your students to use Grammarly?

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6. Based on your observation, how has Grammarly influenced students' writing skills on terms of grammar, vocabulary, and coherence?

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7. Do you think Grammarly helps students become more independent writers, or fo they become overly reliant on it?

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8. Have you noticed any improvement in students writing after using Grammarly?

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9. How does Grammarly compare to traditional feedback methods in improving students writing skills?

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الملخص

أحد الأهداف الرئيسية للتعليم الحديث هو تمكين الطلاب من تطوير مهاراتهم الأكاديمية من خلال الاستفادة من الأدوات والموارد الحديثة. في السنوات الأخيرة، بدأت العديد من الجامعات والأساتذة في دمج أدوات الذكاء الاصطناعي في أساليبهم التدريسية لجعل عملية التعلم أكثر فاعلية. تركز هذه الدراسة على تحليل تأثير أداة "Grammarly"، وهي أداة كتابة تعتمد على الذكاء الاصطناعي في الكتابة الأكاديمية لدى طلبة السنة الثانية ماستر تخصص اللغة الإنجليزية بجامعة محمد خيضر بسكرة. كما تهدف إلى فهم تصورات كل من الطلبة والأساتذة بشأن استخدام هذه الأداة في مهام الكتابة وتحقيق هذا الهدف، تم اعتماد منهج نوعي، حيث جُمعت البيانات من خلال استبيان وُزِعَ على طلبة السنة الثانية ماستر، بالإضافة إلى مقابلات أُجريت مع سبعة أساتذة مختصين في مهارة الكتابة. أظهرت النتائج أن معظم الطلبة يرون أن "Grammarly" أداة مفيدة في تحسين القواعد اللغوية، والمفردات، ووضوح النصوص. ومع ذلك، اتفق كل من الطلبة والأساتذة على أن لهذه الأداة بعض القيود، خاصة فيما يتعلق بتطوير الأفكار وتنمية مهارات التفكير النقدي بشكل عام، تشير النتائج إلى أن "Grammarly" يمكن أن تكون أداة مساعدة فعالة في الكتابة الأكاديمية، لكنها لا يمكن أن تحل محل التوجيه الأكاديمي الذي يقدمه الأستاذ.