



People's Democratic Republic of Algeria
Ministry of Higher Education and Scientific
Research University of Ibn Khaldoun, Tiaret



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**Comparative Analysis of Current Word Processing Applications
That Use Artificial Intelligence**

**Case of Study: The Use of Grammarly and Quillbot Amongst Third Year BA
Students at Ibn Khaldoun University of Tiaret**

**Dissertation Submitted in Partial Fulfillment of The Requirement
for The Master's Degree in Linguistics**

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Academic Year: 2022-2023

Dedications

Reguieg Yassine:

I want to dedicate this work to my lovely family starting with my mother giving me her blessings and support, my father who always taught me to never settle with the less and always go big, to my two precious sisters giving me all the support and to my brother who have been there always. Finally, I would love to thank my friends who were a huge support to me in making the work at hand thank you to everyone and a special thank you to my closest friend and companion Ibrahim may Allah protect you.

Mouffouk Ibrahim

I would love to dedicate this work to my mother who passed away for being a beautiful memory I will never forget may Allah grant her paradise. And I want to also thank my family that stood by me in my journey of life and supporting through everything. Also, a huge thanks to all my friends whom I shared the university years with.

Acknowledgement

During the past productive months, a great number of people have accompanied and supported us in completing the dissertation at hand. Their unwavering assistance and encouragement have been invaluable, and we would like to extend our heartfelt gratitude to each and every one of them.

First and foremost, we express our deepest thanks to our esteemed supervisor, **Dr. Allel Bilel Fasla**. His boundless patience, precious guidance, constant encouragement, and constructive criticism have played an indispensable role in our journey. Without his unwavering support and invaluable presence, it would have been nearly impossible for us to overcome one of the most significant academic challenges we have ever faced. The lessons we have learned from him will shape our careers forever.

In addition, we would like to express our sincere appreciation to the board of examiners for their dedicated time and effort in reading and evaluating this modest research. Their expertise and insights have greatly enriched our work, and we are grateful for their valuable contributions.

Furthermore, we extend a profound gratitude to our dear professors, **Dr. Khaled Belarbi** and **Mr. Amine Dekkiche**, for their invaluable guidance throughout the course of this research. Their expertise, wisdom, and unwavering support have been instrumental in shaping our approach and methodology. We are truly appreciative of their assistance, and their contributions have made a significant impact on our academic journey.

To all those who have contributed to our research, whether directly or indirectly, we extend our sincerest appreciation. Your guidance, support, and encouragement have been instrumental in our achievements, and we are honored to have had the opportunity to work with such remarkable individuals.

Abstract

The dissertation at hand aims to compare current word processing applications that utilize artificial intelligence, specifically focusing on Grammarly and Quillbot. Additionally, it analyses how these programs have evolved over time. To achieve this objective, a quantitative approach was adopted, using a structured online questionnaire. The questionnaire was administered to eighty participants, consisting of third-year LMD and Master one students at Ibn Khaldoun University of Tiaret in Algeria. The findings of this research indicate that students hold positive attitudes towards the use of these word processing applications. The results highlight the significant positive effects these programs have on students' writing skills. It was observed that the use of word processing applications assists students in improving their writing by preventing them from making grammar, punctuation, and spelling mistakes. Overall, this research contributes to the growing body of literature on the impact of word processing applications that utilize artificial intelligence. By highlighting the positive effects of these tools on students' writing skills, it provides insights into the potential benefits of incorporating AI-driven technologies in educational settings.

Keyword: word processing applications, word processors, WPA, artificial intelligence, Ai, Grammarly, Quillbot

List of Abbreviations

WPA: word processing applications

Ai: artificial intelligence

L3: third year LMD students

NLP: natural language processing

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General introduction

Whether you're a seasoned author or a novice writer, the word processor's recommendations can help refine your work and elevate it to new heights. Not only does the word processor assist with language refinement, but it also aids in structural improvements. It can identify redundant phrases, highlight passive voice constructions, or even suggest reordering paragraphs for better coherence. With each correction and suggestion, the word processor becomes a trusted companion, guiding you through the intricacies of effective writing. Furthermore, as technology continues to advance, word processors are incorporating artificial intelligence and machine learning algorithms, continuously improving their capabilities. They learn from vast amounts of data, including well-written literature and professional writing, to provide ever-more-accurate suggestions and corrections. This means that over time, the word processor becomes better attuned to your writing style, adapting its recommendations to match your unique voice. In addition to their invaluable assistance during the writing process, word processors offer convenience and accessibility. They sync seamlessly across devices, allowing you to switch effortlessly between your laptop, tablet, and smart phone. Gone are the days of carrying around bulky notebooks or worrying about losing your handwritten drafts. Your work is safely stored in the digital realm, accessible whenever and wherever inspiration strikes. Indeed, the word processor has revolutionized the art of writing, offering a multitude of benefits to authors, professionals, and students alike. Its ability to provide real-time feedback, recommend improvements, and facilitate seamless collaboration makes it an essential tool for anyone seeking to convey their thoughts and ideas effectively. As we embark on a new era of technology and writing, we can only anticipate further advancements in word processors. One of the most known word processing applications that use artificial intelligence are Grammarly and Quillbot. The features provided by these applications are unimaginable and extremely helpful for both professional writers or even students assessing them in writing essays, emails, assignments. This study focuses on explaining what are word processors and how artificial intelligence and machine learning was integrated onto them, comparing two of the most used apps in the educational field. The dream of a writing companion that corrects and guides us on our journey has become a reality with Ai powered word processors. It has transformed the writing process, pushing writers to produce their best work with confidence and ease.

Research Motivations:

Writing skills in the context of higher education. The use of word processing applications has become increasingly prevalent, and it is crucial to understand how these tools influence students' writing abilities and academic performance. By conducting this research, we aimed to delve deeper into the functionalities and development of current word processing applications that utilize artificial intelligence. Understanding how these programs work and evolve over time provides valuable insights into their effectiveness and potential for supporting students' writing improvement.

Research Aims:

This study seeks to compare two specific applications: Grammarly and Quillbot. By conducting a detailed comparison, we aim to determine which of these applications is more effective and useful for students in their writing endeavours. The comparison will focus on several key aspects. Firstly, we will assess the accuracy and reliability of each application and see which one is more effective in being the better grammar checker programme. Additionally, we will examine the user interface and ease of use of both applications, considering factors such as intuitiveness, accessibility, and user-friendliness.

Research Question

On the basis of what is already stated, the present research attempts to answer the following question:

- a) How do word processing applications work?
- b) What are Grammarly and Quillbot? And which applications is more useful
- c) Do students find Grammarly more helpful than Quillbot? and which one is used the most?

Research Hypotheses

Three hypotheses have been put as anticipated answers to the research questions above:

- a) Word processing applications are designed to allow users to write and manipulate a text document
- b) Grammarly and Quillbot both are very effective WPAs however Grammarly is widely spread and have more users than Quillbot due to the availability on all platforms

- c) Grammarly is students favorite Application to use due to the easy user interface and being popular in the field of education on the other hand Quillbot also has its own audience however it features differ from that from Grammarly.

Research methodology

In our research, we adopt a quantitative approach to analyse and compare the two AI-powered word processing applications, Grammarly and Quillbot. By employing a quantitative methodology, we aim to provide statistical insights and objective measurements to assess the features, benefits, and limitations of these applications. Additionally, we gather user feedback through an online questionnaire to gauge their experiences with Grammarly and Quillbot. This feedback will include questions regarding user satisfaction, ease of use, and perceived value in terms of enhancing writing quality. By incorporating user perspectives, we aim to provide a comprehensive analysis that encompasses both objective measurements and subjective user experiences. Throughout the research, we analyse the collected data using statistical methods and tools. We employ descriptive statistics to summarize the quantitative measurements, such as mean accuracy scores or average improvement percentages. By employing a quantitative approach, our research aims to provide an objective and data-driven analysis of these AI-powered word processing applications. The statistical findings and measurements obtained will contribute to a better understanding of the strengths, limitations, and comparative performance of Grammarly and Quillbot. Ultimately, our research aims to assist students in making informed decisions regarding the utilization of AI-driven word processors for their writing needs.

Chapter One

Chapter One: Word processors And Artificial Intelligence

1 Introduction

As most people, we attempt to find the simplest apparatus to do the hardest of occupations keeping away from any endeavors. We went from ink and paper to mechanical writing using typewriters and now we are making a plunge into the domain of technology and computers utilizing word processing applications. Contrary to popular belief, word processing didn't develop from computer technology. Instead, it evolved from writers' needs to those of mathematicians. The story of its evolution is the story about how it gradually automated the various aspects of editing and writing, and how it became more accessible to corporate and individual users.

This chapter aims to discuss the history of word processing, identify several popular word processing applications, and define the capabilities of word processors. The ability to perform word processing used to require a computer and a special type of computer software called a word processor. However, the development of technology in the past few years made it possible that even smartphones and tablets have a built-in word processing. Furthermore, it shows the development of word processing applications through the years, and how word processing applications actually work and how they are built. Although word processor is one of the most-used computer applications in education however they are many word processing applications in the market and they differ in their features and user interface.

1.1 A Brief History on Word Processing

Due to a lack of speed and productivity in the inventions, word processors passed through multiple stages over time. Christopher Latham Sholes, with the help of two associates, designed the first successful, effective manual typewriter in 1867. It began to be marketed commercially in 1874, rather improbably by a gun manufacturing company, E. Remington and Sons marketed commercially in 1874, rather improbably by a gun manufacturing company, E. Remington and Sons. The primary flaw of this design was that it printed on the roller's backside, preventing the typist from viewing his work until it was complete. The adoption of the typewriter was first gradual, but over the following few years, different innovations

Chapter One

made it easier. These included the shift key (1878), which allowed for the simultaneous typing of capital and lowercase letters, and printing on the roller's top surface (1880); and the tab key, permitting the setting of margins (1897).

Thomas Edison patented an electric typewriter in 1872, but the first workable model was not introduced until the 1920s. In the 1930s IBM introduced a more refined version, the IBM Electromatic. It significantly boosted typing speed and was rapidly widely accepted in the business world. This was soon followed by the M. Shultz Company's introduction of the automatic or repetitive typewriter, perhaps the greatest step from the typewriter towards modern word processing. The primary new feature of the Schultz machine was automatic information storing for subsequent retrieval. It functioned as a kind of "player typewriter," punch-coding text onto paper rolls resembling those seen in player pianos so that it could later be used to activate the typewriter's keys in the same order as when it was first typed. The automated typewriter made it feasible to create several typed copies of form letters that were visually identical to the hand-written originals without the use of photocopiers, carbons, or typesetting. The heavy paper roll machine was replaced with the paper tape-using Flexowriter. This had a key that allowed the deletion of mistakes from the tape and copies by punching a "non-print" code over the code for the character erroneously typed. The tape could literally be cut and re-pasted to erase or move lengthy portions of material.

Typewriters had no memory capacities, making retyping records an unavoidable truth. However, this started to change in the 1960s with the introduction of typewriters like the wildly successful IBM Selectric series, which effectively started the era of word processing. With IBM new memory typewriters that could store information on a magnetic tape and later were replaced by cards. The typist would simply backspace the typewriter after making a mistake and retype the appropriate text over the incorrect one, this at the time significantly improved paper preservation and time efficiency. When the typist inserted a new blank sheet, the typewriter could remember the proper version and immediately print out a perfect copy of the requested text. MagCards, magnetic cards that were inserted into a box attached to the typewriter that recorded text as it was typed on paper, were first introduced by IBM in 1969. Then, the cards may be used to remember and print out text. These improvements were mostly useful to companies which sent large numbers of letters and documents. However, the downside of these Magcards was that one page worth of text could be stored in one whole card.

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In 1972 Lexitron and Linolex made a similar version of that word processing system, but added video display screens and tape cassettes for storage. Text may be input and edited on the screen without needing to create a printed copy. Printing might be put off until the author is happy with the content, some people thought it was a radical breakthrough at the moment.

A Brief History of Word Processing (Through 1986) by Brian Kunde

1.2 The Rise of Word processing

The development of larger storage devices (the first floppy disks) and less expensive computer memory in the 1970s resulted in word processing programs that could store and manage entire documents. That was followed by the addition of cathode ray tube (CRT) screens and computerized printers. Now you could easily view the entire page as you were typing, go back and forth to make edits, and instantly print out the results. The modern era of word processing took off. Initially, the market for dedicated word processors basically, computers with proprietary software which were used only to produce typed documents, experienced a boom. Successful companies that produced them include Vydec and Wang Laboratories. Typists continued to utilize typewriters, but huge offices and the processing of numerous documents were replaced by word processors that made their jobs easier for them because some businesses recognized word processors as the future of typing and met their demands.

Then word processing took a major leap of faith in the PC revolution with Apple 1977. Word processing quickly became one of the most popular applications for these new devices with programs such as WordStar, WordPerfect, MultiMate and Microsoft Word in hot demand (Microsoft Word's initial release, which debuted on its own in 1983 and eventually joined Word Office). This software was expensive, sometimes costing up to \$500. There were several arguments about which word processor was the best, but each

one allowed for the duplication of many (if not all) of the features of a dedicated word processor. The PC changed word processing in the same way that Gutenberg improved printing and the typewriter revolutionized the creation of business documents.

The ease of text processing on a PC was immense for the typical everyday typist. As the software continued to progress automatically, you were no longer required to manually add a carriage return at the end of a line. Misspell a word? Use find and replace to correct. Move paragraphs around with cut and paste. This is how simple word processing software facilitated editing text and documents. Spell checking and autocorrect were later included, making it even simpler to produce error-free texts in the early 1990s. From here the four primary functions of word processors were forged: composing, editing, saving and printing.

1.2.1 Word processors

As previously mentioned, WP (Word processor) is a computer program used to write and revise documents, compose the layout of the text, and preview on a computer monitor how the printed copy will appear. WPA (word processing applications) have evolved significantly compared to earlier ones. Modern WPA facilitate Writing and editing

1.2.2 Wordstar Word processor (First WPA)

WordStar was the first application to provide full word processing capabilities to personal computer users at a fraction of the cost of professional word processors at the time. In the late 1970s and early 1980s, WordStar was the world's finest word processing application. In the late 1970s and early 1980s, WordStar was the world's finest word processing application. Yet, it was up against intense rivalry from WordPerfect, which subsequently dominated the market. WordStar is a word processing software for computers. Word processing software is a type of program that focuses on text handling. Computers performs this by generating a numeric code to each letter of the alphabet and each character on the keyboard. These numeric codes are translated to machine language and stored in the memory of the computer. Because the data is kept in memory, it is simple to update and manipulate. This is the key to word processing's success. You type in your material using the keyboard, save it to a diskette, and then use WordStar to print a paper copy of it. Your document must first be connected to your

computer, turned on, and loaded with paper before you can print it. This was revolutionary at the time making both writing and printing extremely simple and usable.

WordStar Word Processor:
Everything You Need to Know
(2019 History Computer Staff,
Author for History-Computer)

1.3 Word Processing Applications

Word processing applications have revolutionized the way we create, edit, and manage electronic documents. These applications have become an essential tool for businesses, students, and individuals, providing a wide range of features and functions to create, edit, format, and share documents. This paper provides an in-depth analysis of word processing applications, their features, benefits, and limitations.

Computer History

Tracing the History of the Computer - History of Word Processors

1.3.1 Features of Word Processing Applications:

Word processing applications provide a variety of features that allow users to create, edit, and format documents. These features include:

1. Text Formatting:

One of the primary features of word processing applications is text formatting. These applications provide a wide range of options for formatting text, including font selection, font size, font style, font color, and highlighting. Users can also adjust the line spacing, paragraph spacing, and indentation of text to make it more readable and visually appealing. Word processing applications also allow users to apply styles to text, which can save time and ensure consistency throughout a document.

2. Paragraph Formatting:

Word processing applications also provide features for formatting paragraphs, including alignment, indentation, and line spacing. Users can align text left, center, right, or justify it, and indent text to create a hierarchy of information. Paragraph spacing can also be adjusted to create more white space between paragraphs, making the document easier to read.

3. Page Formatting:

Page formatting features in word processing applications include setting margins, adjusting page orientation (portrait or landscape), and adding page breaks. Users can also add headers and footers to documents, which can include page numbers, document titles, and other information.

4. Spell Check and Grammar Check:

Word processing applications have built-in spell check and grammar check features that help users identify and correct errors in their documents. Spell check highlights misspelled words and suggests corrections, while grammar check can identify errors in sentence structure, word usage, and punctuation.

5. Collaboration:

Word processing applications provide features for collaborating on documents, which can improve productivity and efficiency. Multiple users can work on the same document simultaneously, with changes tracked and recorded. Comments and feedback can also be added to documents, allowing for easy communication and collaboration.

6. Document Sharing:

Word processing applications allow for easy document sharing via email, cloud storage, or other means. Documents can be exported in various file formats, including PDF, HTML, and plain text. This makes it easy to share documents with others, regardless of their platform or software preferences.

7. Inserting Images and Tables:

Word processing applications provide features for inserting images and tables into documents. Users can adjust the size and placement of images, add captions, and wrap text around them. Tables can also be inserted into documents, with options for formatting, sorting, and filtering data.

8. Auto Correct:

Word processing applications have an AutoCorrect feature that automatically corrects commonly misspelled words, typos, and formatting errors. This feature saves time and ensures consistency throughout a document.

Word processing applications provide a wide range of features that make creating, editing, and managing electronic documents easier and more efficient. Text formatting, paragraph formatting, page formatting, spell check and grammar check, collaboration, document sharing, inserting images and tables, and AutoCorrect are just a few of the features that make word processing applications an indispensable tool for businesses, students, and individuals. By using these features effectively, users can save time and improve the quality and consistency of their documents.

Andrew Prestage, in Encyclopedia of Information Systems, 2003

1.3.2 Benefits of Word Processing Applications:

1. Increased Efficiency:

One of the primary benefits of using word processing applications is increased efficiency. These applications allow users to create and edit documents quickly and easily, without the need for manual formatting and styling. Features like AutoCorrect, spell check, and grammar check can also save time by automatically identifying and correcting errors.

2. Improved Document Quality:

Word processing applications provide a range of features that can improve the quality of documents. Text formatting options allow users to create visually appealing and professional-looking documents, while paragraph and page formatting features can make documents easier to read and navigate. Collaboration features can also improve the quality of documents by allowing multiple users to work on a document simultaneously and provide feedback.

3. Better Organization and Management:

Word processing applications provide tools for organizing and managing documents, which can save time and improve productivity. Document templates and styles can ensure consistency throughout a document, while folder and file management tools can help users keep their documents organized and easily accessible. Document sharing features also make it easy to collaborate with others and manage multiple versions of a document.

4. Cost Savings:

Using word processing applications can also result in cost savings, particularly in business settings. Electronic documents eliminate the need for physical storage space and reduce the cost of printing and mailing documents. Collaboration features can also reduce the need for in-person meetings, saving travel and meeting expenses.

5. Accessibility:

Word processing applications are widely accessible and can be used on various devices, including desktop computers, laptops, tablets, and smartphones. This accessibility

allows users to work on documents from anywhere, at any time, and on any device, improving productivity and flexibility.

6. Environmental Benefits:

Using word processing applications can also have environmental benefits by reducing paper usage and promoting sustainability. Electronic documents eliminate the need for printing and mailing physical copies, reducing paper waste and promoting eco-friendliness.

7. Improved Learning and Teaching:

Word processing applications can also benefit education by improving learning and teaching. Students can use these applications to create and edit documents for assignments and projects, while teachers can use them to create lesson plans, handouts, and assessments. Collaboration features can also promote teamwork and peer review, improving the quality of student work.

Word processing applications provide a range of benefits that improve efficiency, productivity, and quality in various settings. These applications offer features that make document creation and management easier and more efficient, resulting in cost savings and environmental benefits. Accessibility, improved learning and teaching, and better organization and management are just a few of the additional benefits of using word processing applications. By using these applications effectively, users can save time, improve productivity, and achieve their goals more efficiently.

Patricia L. Hardré, in *Emotions, Technology, and Behaviors*, 2016

Charles A. Sennewald, Curtis Baillie, in *Effective Security Management (Sixth Edition)*, 2016

1.4 Introduction of Microsoft Word and Google docs

Microsoft Word and Google Docs are two popular word processing software applications with their unique features and benefits. Microsoft Word offers a comprehensive range of features and is ideal for users who require offline access, while Google Docs offers a cloud-based solution that is highly effective for collaboration and accessibility. Ultimately, the choice between the two software applications depends on the user's specific needs and preferences.

Microsoft Word is a word processing software developed by Microsoft Corporation. It is part of the Microsoft Office suite and is available for Windows, macOS, and mobile devices. Microsoft Word is a comprehensive tool for creating and editing documents, and offers a wide range of features such as formatting, collaboration tools, templates, graphics and multimedia support, and automation. One of the key benefits of Microsoft Word is its user-friendly interface, which allows users to easily create and edit documents with a range of formatting options. Its collaboration tools allow multiple users to work on the same document in real-time, making it ideal for group projects or remote teams. Additionally, its templates and automation features make it an efficient tool for creating and formatting documents. Meanwhile, on the other hand Google Docs is a cloud-based word-processing software developed by Google. It is accessible through a web browser and is available for free with a Google account. Google Docs offers similar features to Microsoft Word, including formatting, collaboration tools, templates, graphics and multimedia support, and automation. One of Google Docs' main advantages is its cloud-based nature, which means that documents can be accessed from any device with an internet connection. Additionally, its collaboration tools are highly effective, allowing multiple users to work on the same document in real-time and leave comments and suggestions. While Microsoft Word and Google Docs share many similar features, there are some key differences between the two software applications. Some of these differences include:

1. Cost: Microsoft Word is a paid software application that requires a one-time purchase or subscription, while Google Docs is available for free with a Google account.
2. Compatibility: Microsoft Word is compatible with multiple operating systems, including Windows, macOS, and mobile devices, while Google Docs is accessible through a web browser and can be used on any device with an internet connection.
3. Offline access: Microsoft Word allows users to work on documents offline, while Google Docs requires an internet connection to access documents.
4. Integration: Microsoft Word integrates with other Microsoft Office applications, such as Excel and PowerPoint, while Google Docs integrates with other Google applications, such as Google Drive and Google Sheets.
- 5.

Vijay K Sharma February 22, 2017 Microsoft Word
Judd, Cindy & Attebury, Ramirose & George, Julie &
Marcum, Brad & Montgomery, Nicole. (2009).

Google Docs: A Review. Against the Grain. 20. 14-17.
10.7771/2380-176X.2736.

1.4.1 Microsoft Word

Microsoft Word is a word processing software that has been widely used since its introduction in 1983. Over the years, Microsoft has made significant updates and improvements to the software, making it a go-to tool for creating and editing documents in various fields. This study aims to provide a detailed analysis of Microsoft Word, including its history, features, benefits, and future prospects. Microsoft Word was first developed by Charles Simonyi and Richard Brodie for the Xerox Alto computer system in the early 1980s. In 1983, Microsoft released the first version of Word for MS-DOS, which was followed by the introduction of Word for Windows in 1989. The early versions of Word were simple word processors with limited functionality, but subsequent releases added more advanced features, such as spell check, grammar check, and desktop publishing capabilities.

Microsoft Word offers a range of features that make it a powerful tool for creating and editing documents. Some of the key features of Microsoft Word are:

1. **Formatting:** Microsoft Word offers a wide range of formatting options, including font styles, font sizes, colors, and effects. Users can also customize margins, spacing, and layout of their documents.
2. **Collaboration tools:** Microsoft Word allows multiple users to collaborate on a document in real-time. Users can share their documents with others and make changes to the same document simultaneously.
3. **Templates:** Microsoft Word provides users with a variety of templates for different types of documents, including resumes, business letters, and academic papers.
4. **Graphics and multimedia support:** Microsoft Word enables users to add images, videos, and audio to their documents, and allows for formatting and resizing of multimedia objects.
5. **Automation:** Microsoft Word has several automation features, including macros, which allow users to automate repetitive tasks, and autocorrect, which fixes common typing errors.

Benefits of Microsoft Word: There are several benefits to using Microsoft Word:

1. **User-friendly:** Microsoft Word has an intuitive user interface that makes it easy for users to create and edit documents.

2. **Compatibility:** Microsoft Word is compatible with multiple operating systems, including Windows, macOS, and iOS, and can be used on desktops, laptops, and mobile devices.
3. **Productivity:** Microsoft Word's automation features and collaboration tools enable users to work more efficiently and increase their productivity.
4. **Versatility:** Microsoft Word can be used for a variety of purposes, including creating business reports, academic papers, resumes, and personal letters.
5. **Cost-effective:** Microsoft Word is a cost-effective software that is affordable for both individuals and businesses.

The future of Microsoft Word looks promising. Microsoft has continued to improve the software's capabilities, such as the integration of artificial intelligence and machine learning. Future updates may include features such as voice recognition and translation capabilities, which could further improve the software's productivity and efficiency.

Microsoft Word is a powerful and versatile word processing software that has been around for several decades. With its many features and benefits, it has become a go-to software for creating and editing documents. Whether you're a student, a business professional, or a writer, Microsoft Word can help you achieve your goals efficiently and effectively.

Vijay K Sharma February 22, 2017 Microsoft Word

1.4.2 Google Docs

Google Docs is a cloud-based word processing software developed by Google in 2006. It is a free web-based application that allows users to create, edit, and share documents online. Google Docs is part of the Google Suite of applications, which includes Gmail, Google Drive, Google Sheets, and Google Slides. It has become a popular tool for individuals, businesses, and academic institutions due to its ease of use, collaboration capabilities, and cloud-based storage.

One of the key advantages of Google Docs is its accessibility. As a web-based application, it can be accessed from any device with an internet connection, making it a versatile tool for users on the go. Additionally, Google Docs allows multiple users to collaborate on a document in real-time, which is particularly useful for remote work and team collaboration.

Google Docs also offers a range of features that make it a powerful tool for creating and editing documents. It provides users with a variety of templates for different types of documents, including resumes, business letters, and academic papers. Google Docs also has several add-ons that enhance its capabilities, such as the ability to add citations, create tables of contents, and check for grammar errors.

In recent years, Google has continued to improve Google Docs' capabilities, such as the integration of artificial intelligence and machine learning. Future updates may include features such as voice recognition and translation capabilities, which could further improve the software's productivity and efficiency.

Overall, Google Docs is a powerful and versatile word processing software that offers users the ability to create and collaborate on documents online. Its accessibility, collaboration capabilities, and range of features make it a popular choice for individuals, businesses, and academic institutions.

Features:

1. **Real-time collaboration:** Google Docs allows multiple users to work on a document simultaneously, in real-time. This feature is especially useful for team projects, as it allows for seamless collaboration and quick feedback.
2. **Cloud-based storage:** All documents created in Google Docs are stored in the cloud, making them accessible from any device with an internet connection.
3. **Templates:** Google Docs offers a wide range of templates for various types of documents, such as resumes, business letters, and academic papers. These templates can help users save time and ensure that their documents are professional-looking.
4. **Revision history:** Google Docs saves a revision history of all changes made to a document, which allows users to track changes and revert to previous versions if necessary.
5. **Add-ons:** Google Docs offers a range of add-ons that can enhance its functionality, such as the ability to add citations, create tables of contents, and check for grammar errors.
6. **Voice typing:** Google Docs has a voice typing feature that allows users to dictate text instead of typing it. This feature can be especially useful for users with disabilities or those who prefer to dictate rather than type.
7. **Integration with other Google apps:** Google Docs can be integrated with other Google apps, such as Google Drive, Google Sheets, and Google Slides. This integration allows users to easily share and collaborate on documents with other team members.

Benefits:

Accessibility: As a cloud-based application, Google Docs can be accessed from any device with an internet connection, making it a versatile tool for users on the go.

1. Cost-effective: Google Docs is a free application, which makes it a cost-effective alternative to traditional word processing software.
2. Collaboration: Google Docs' real-time collaboration feature makes it easy for teams to work together on a document, regardless of their location.
3. Security: Google Docs uses advanced security measures to protect users' documents and data, including encryption and two-factor authentication.
4. Easy sharing: Google Docs makes it easy to share documents with others, whether it's through a link, email, or social media.
5. Versatility: Google Docs is a versatile tool that can be used for a wide range of purposes, from writing and editing documents to creating spreadsheets and presentations.
6. Automatic saving: Google Docs automatically saves changes to a document in real-time, so users never have to worry about losing their work due to a power outage or system crash.

In conclusion, Google Docs is a powerful and versatile word processing application that offers a range of features and benefits to users. Its cloud-based storage, real-time collaboration, and automatic saving capabilities make it a convenient and user-friendly tool for individuals, teams, and organizations. Its integration with other Google apps and the availability of a wide range of templates and add-ons makes it a versatile tool that can be used for a range of purposes. Moreover, its cost-effectiveness and accessibility make it an attractive alternative to traditional word processing software. Overall, Google Docs has revolutionized the way we create, share, and collaborate on documents, and it is no surprise that it has become the go-to tool for many users around the world.

1.1 Word Processing Applications and Artificial Intelligence

Word processing applications are software programs designed to create, edit, and format text-based documents on a computer. These applications have been around for decades and have undergone significant advancements since their inception, from the basic text editors of the past to the sophisticated, feature-rich word processors of today.

With the rise of artificial intelligence (AI), word processing applications are now incorporating AI technology to enhance their functionality and provide users with a more seamless and productive experience. AI technologies such as natural language processing (NLP) and machine learning (ML) are being used to improve features such as auto-correction, grammar and spelling suggestions, and predictive typing.

NLP algorithms can analyze and understand the context and meaning of text, allowing word processing applications to provide more accurate suggestions for corrections and formatting. ML algorithms can analyze user behavior to make predictions about what actions the user is likely to take next and suggest relevant tools or features to improve productivity. AI-powered voice recognition technology is also being incorporated into word processing applications, allowing users to dictate their text, which can then be automatically transcribed by the application. This feature is especially beneficial for individuals with disabilities or those who find it difficult to type.

The integration of AI into word processing applications has the potential to improve the speed and accuracy of document creation and editing, as well as provide users with a more intuitive and personalized experience. With the continued advancements in AI technology, we can expect to see further enhancements and improvements in word processing applications in the future.

(International Journal of
Linguistics, Literature and
Culture, June 2019 edition
Vol.6 No.2)

1.4.3 Artificial Intelligence and Natural Language Processing

1. Explanation of NLP algorithms

Natural language processing (NLP) algorithms are a subset of artificial intelligence (AI) that focuses on understanding and processing human language. NLP algorithms enable machines to analyze, interpret, and generate human language, making it possible for them to understand written and spoken text.

NLP algorithms use a combination of techniques such as statistical modeling, machine learning, and linguistics to analyze and understand natural language. These algorithms are designed to extract meaningful information from unstructured data, such as text, speech, and images.

One of the most significant applications of NLP algorithms is in the area of text analysis. NLP algorithms can analyze the structure, syntax, and context of a sentence to identify parts of speech, extract named entities, and identify relationships between words. This capability enables word processing applications to provide more accurate auto-correction, grammar and spelling suggestions, and formatting suggestions to users.

NLP algorithms can also be used to perform sentiment analysis, which is the process of identifying the emotional tone of a piece of text. This capability can be used to analyze customer feedback, social media posts, and other forms of user-generated content to gain insights into customer satisfaction, brand perception, and other aspects of the customer experience.

Overall, NLP algorithms are an essential component of AI technology, and their integration into word processing applications has the potential to significantly improve the accuracy and functionality of these applications.

(Computational Linguistics: Analysis of The Functional Use of Microsoft Text Word Processor Text Corrector)

1.4.4 How NLP algorithms improve auto-correction, grammar and spelling suggestions, and formatting

NLP algorithms are being used to improve auto-correction, grammar and spelling suggestions, and formatting in word processing applications. Here's how:

1. Auto-correction: NLP algorithms can analyze the context and meaning of a sentence to identify and correct spelling errors, typos, and other errors. These algorithms can also

take into account the user's writing history and preferences to provide more personalized auto-correction suggestions.

2. Grammar and spelling suggestions: NLP algorithms can analyze the structure and syntax of a sentence to identify grammatical errors and suggest corrections. These algorithms can also identify words that are commonly misspelled and suggest the correct spelling.
3. Formatting: NLP algorithms can analyze the structure and content of a document to provide suggestions for formatting, such as font size, font style, and spacing. These algorithms can also provide suggestions for paragraph and sentence structure to improve readability.

In addition to these specific features, NLP algorithms can also help word processing applications better understand user intent and provide more accurate suggestions and recommendations. For example, if a user types "I want to schedule a meeting," NLP algorithms can identify the intent behind the statement and provide relevant suggestions, such as scheduling tools or meeting templates.

Overall, NLP algorithms have the potential to significantly improve the accuracy and functionality of word processing applications, making it easier and more efficient for users to create and edit written content.

1.4.5 AI and Machine Learning

1.4.5.1 Explanation of ML algorithms:

Machine learning (ML) algorithms are a type of artificial intelligence(AI) that enable machines to learn and improve their performance without being explicitly programmed. Instead, these algorithms use statistical techniques to analyze large amounts of data and identify patterns and relationships that can be used to make predictions and decisions.

ML algorithms can be broadly categorized into three types:

1. Supervised learning: In supervised learning, the algorithm is trained on labeled data, which means that each data point is associated with a label or target variable. The algorithm learns to map input features to the target variable and can be used to make predictions on new, unseen data.
2. Unsupervised learning: In unsupervised learning, the algorithm is trained on unlabeled data, which means that there are no target variables or labels. Instead, the algorithm analyzes the data and identifies patterns and relationships on its own.

3. Reinforcement learning: In reinforcement learning, the algorithm learns through trial and error. It interacts with an environment and receives rewards or punishments based on its actions. The algorithm learns to maximize its rewards over time by choosing actions that lead to positive outcomes.

ML algorithms are being used in word processing applications to analyze user behavior and provide personalized recommendations and suggestions. For example, if a user frequently uses a particular feature or tool, the application can learn to suggest that feature or tool more prominently. ML algorithms can also be used to analyze large amounts of data to identify trends and patterns that can be used to improve the functionality and performance of word processing applications.

(specialty grand challenge article
front. big data, 19 november 2018
sec. machine learning and artificial intelligence
volume 1 – 2018)

1.4.5.2 How ML algorithms analyze user behavior to suggest relevant tools or features

Machine learning (ML) algorithms have become increasingly important in the development of modern word-processing applications. These algorithms can help improve the user experience by analyzing user behavior to suggest relevant tools or features, as well as by providing auto-correction, grammar and spelling suggestions, formatting suggestions, and other useful features.

One of the key advantages of ML algorithms is their ability to learn from data. By analyzing patterns and relationships in user behavior data, these algorithms can identify the tools or features that are most relevant to the user's needs and provide personalized recommendations for how to use them. For example, if a user frequently makes use of auto-correction or spelling suggestions, the algorithm can prioritize these features in the user interface and provide tips and tricks for using them more effectively.

Another important application of ML algorithms in word processing is the use of natural language processing (NLP) techniques to analyze and understand written text. NLP algorithms can be used to identify grammar and spelling errors, suggest corrections, and

even generate new text based on user input. Here are some general steps that ML algorithms can take to analyze user behavior:

1. **Collect data:** The first step is to collect data on user interactions with the word processing application. This can include data on which features are used most frequently, how often the user makes use of auto-correction or spelling suggestions, and how the user formats their documents.
2. **Train the algorithm:** Once the data has been collected, the ML algorithm can be trained on this data to learn patterns and relationships between different user behaviors and the tools or features that are most relevant to those behaviors. This involves using statistical techniques to identify correlations between different variables.
3. **Identify relevant tools or features:** Based on the patterns and relationships identified in the training data, the ML algorithm can then identify the tools or features that are most relevant to the user's behavior. For example, if the user frequently makes use of the auto-correction or spelling suggestion feature, the algorithm may prioritize this feature in the user interface or suggest it more prominently.
4. **Provide personalized recommendations:** Finally, the ML algorithm can use the information learned from user behavior to provide personalized recommendations for tools or features. For example, the algorithm may suggest new features based on the user's behavior, or provide tips and tricks for using existing features more effectively.

(Traphagan, T., & Baca, A. (2020). AI and Machine Learning Applications in Writing Centers: Benefits, Challenges, and Ethical Considerations. *Journal of Response to Writing*, 6(1), 53-71)

1.4.5.3 Improving productivity through predictive typing

Predictive typing is a feature that uses machine learning algorithms to anticipate the next word or phrase a user is likely to type based on their previous inputs. By offering suggestions in real-time as the user types, predictive typing can help improve productivity by reducing the amount of time and effort required to compose a document.

Here are some ways predictive typing can improve productivity:

1. **Faster typing:** Predictive typing can help users type more quickly and accurately by reducing the need to manually type every word. As the user types, the algorithm predicts the next word and offers suggestions, which the user can accept or reject with a simple keystroke.
2. **Reduced errors:** By suggesting the correct spelling and grammar, predictive typing can help reduce errors and improve the overall quality of the document. This can save time and effort in the editing and proofreading process.
3. **Customized suggestions:** Predictive typing algorithms can be trained on user-specific data, such as frequently used words, phrases, or jargon, to offer more customized suggestions. This can further improve productivity by reducing the time it takes to find and type commonly used terms.
4. **Improved accessibility:** For users with disabilities or physical limitations, predictive typing can make it easier to compose documents by reducing the amount of typing required. This can improve productivity and make it possible for more people to use word processing applications.

Predictive typing is a powerful tool that can help improve productivity and reduce the time and effort required to compose documents. As machine learning algorithms continue to advance, we can expect to see even more innovative and useful applications of predictive typing in the world of word processing.

1.5 Artificial Intelligence and Voice Recognition Technology

1.5.1 Explanation of AI-powered voice recognition technology

Recent years have seen a rise in the significance of artificial intelligence (AI) and speech recognition technologies, particularly with the adoption of virtual assistants and smart speakers. Voice recognition technology allows users to interact with devices using their voice, while AI enables these devices to understand and respond to those voice commands. One of the key applications is virtual assistants, such as Siri, Alexa, and Google Assistant. These virtual assistants are designed to perform tasks based on voice commands, such as setting alarms, making phone calls, and playing music. In the automotive industry, voice recognition technology is being used to enhance the driving experience. Voice commands can be used to control various features of a car, such as the radio, climate control,

and navigation system. This technology has the potential to improve safety by allowing drivers to keep their hands on the steering wheel and eyes on the road.

Voice recognition technology also has the potential to revolutionize the healthcare industry. It can be used to assist patients with disabilities or elderly patients who have difficulty using traditional input devices, such as keyboards or touchscreens. Voice recognition technology can also be used to automate routine tasks, such as updating electronic health records and prescribing medication. However, speech recognition technology and AI both face a number of difficulties. Accuracy poses one of the biggest difficulties. It's likely that voice recognition software won't be able to distinguish between various dialects or speech patterns. Users may experience mistakes and annoyance as a result. Privacy and security are another issue. Voice data is sensitive information that, if it gets into the wrong hands, might be misused. To secure voice data, it is crucial to adopt strong security measures. Finally, speech recognition and AI have the potential to revolutionize a number of sectors, including healthcare, transportation, and smart homes. To guarantee that these technologies are reliable, secure, and considerate of users' privacy, a number of obstacles must be addressed.

1.5.2 Benefits Of Artificial Intelligence Integration in Word processing applications

1.5.2.1 Improved speed and accuracy of document creation and editing

AI integration in word processing applications offers numerous benefits, some of which are highlighted below:

- 1.Improved accuracy: When compared to conventional approaches, AI algorithms are more accurate in spotting and fixing spelling, grammatical, and punctuation mistakes. For instance, AI-powered grammar checkers may not only identify and fix grammatical faults but also offer justifications and recommendations for improvement.
- 2.Time-saving: AI can automate repetitive tasks, such as formatting and citation, saving time and reducing the risk of errors. For instance, some AI-powered word processing applications can automatically format a document based on the user's preferences or the industry-standard.
- 3.Enhanced user experience: AI can personalize the word processing experience by suggesting relevant tools and features based on the user's behavior and preferences. AI-powered word processors can learn from the user's writing style and suggest commonly used words, phrases, and even whole sentences.

4. Advanced language processing: AI can analyze and interpret natural language, allowing for more sophisticated features, such as sentiment analysis, summarization, and translation. For example, AI-powered word processors can summarize lengthy documents or translate text into different languages.

5. Increased accessibility: AI can improve accessibility for users with disabilities by offering features, such as text-to-speech and voice recognition. These features can allow users with visual, auditory, or motor impairments to use word processing applications with ease.

6. Better collaboration: AI can facilitate collaboration by providing real-time suggestions and feedback to multiple users working on the same document. For example, AI-powered word processors can highlight conflicts in writing style, offer suggestions for resolution, and even track changes made by multiple users.

As a whole, the implementation of AI to word processing software may greatly enhance output, precision, and user experience, making it a crucial tool for contemporary enterprises and people.

(Advantages of Using an Intelligent Document Processing Tool /datasemantics.co)

1.5.2.2 More intuitive and personalized user experience

The creation, editing, and formatting of texts might be completely altered with the incorporation of AI into word processing software. The following are some advantages of using AI in word processing programs: Natural Language Processing (NLP): AI systems are able to decipher and analyze natural language, enabling more complex features that simplify human interaction with word processing software. Word processors with NLP capabilities may recognize and react to voice instructions, making it simpler for users to navigate and complete tasks. For instance, Google Docs makes use of NLP to propose corrections for grammatical and spelling problems as users' type. Personalized suggestions: AI can learn from the user's writing style and suggest commonly used words, phrases, and even whole sentences. AI-powered word processors can also provide suggestions based on the user's preferences, such as font size, color, and style. For example, Grammarly uses AI to provide personalized writing suggestions and corrections.

Contextual understanding: AI can analyze the context of the document and suggest relevant tools and features. For example, if the user is writing a research paper, the AI-powered word processor can suggest citation styles and formatting options. Microsoft Word uses AI to provide suggestions for relevant images and formatting styles based on the content of the

document. Predictive typing in which AI-powered word processors can use predictive typing to suggest words and phrases as the user types, making writing faster and more efficient. For example, SwiftKey Keyboard uses AI to predict and suggest words and phrases as users type on their mobile devices. Adaptive learning: AI can adapt to the user's behavior and preferences, improving the accuracy and relevance of the suggestions over time. For example, Grammarly uses AI to learn from user corrections and feedback to provide more accurate writing suggestions over time.

Writing, editing, and formatting texts may be made simpler for users with the help of AI when it is integrated into word processing software. We may anticipate seeing even more advanced features and advantages in the future as AI technology develops.

1.6 1.5.5 Future of AI Integration in Word Processing Applications

Since their initial release, word processing programs continue to come a long way, with AI integration providing an essential part. Writing advisors driven by AI, such as Grammarly and Quillbot, have already shown to be quite useful in offering real-time comments and ideas for better writing. In the following paragraphs, we will explore the future of AI integration in word processing applications, examining possible development in areas such as language processing, collaboration, automation, and more

Language processing is one area where AI is anticipated to have a major impact on word processing applications. Word processing software will certainly grow better at interpreting and processing natural language as AI advances. This could include better parsing of sentences, identifying context-specific meanings of words, and more. AI-powered writing assistants, for example, might improve at spotting and recommending alternative word choices based on the context in which they are used. AI-powered writing assistants like Grammarly and Quillbot as we will see in chapter two have already proven to be highly effective in identifying and correcting errors in writing. However, it is likely that these tools will become even more sophisticated and personalized in the future. They may be able to give more subtle input on issues like as tone and style, and they might be willing to tailor their ideas to different writing styles. For example, AI might assess a writer's past work and recommend adjustments that are consistent with their established style and preferences. In the future, word processing programs may become more collaborative, with AI acting as a mediator or facilitator between numerous authors. This could include features like automated

editing and revision tracking, where multiple writers can make changes to the same document in real-time, and AI could help to resolve any conflicting changes.

1.7 Conclusion

As humans, we have always sought ways to simplify and streamline tasks, and the evolution of word processors is a testament to this desire for convenience and efficiency. The advent of word processors marked a significant shift from manual typewriters, eliminating the need for physical exertion and manual formatting. With the integration of artificial intelligence into word processors, we can anticipate even more transformative developments that will shape the entire writing industry. The integration of AI into word processors holds immense potential to revolutionize the writing industry. By automating repetitive tasks, providing intelligent suggestions, and enabling advanced language processing capabilities, AI-powered word processors can enhance writing efficiency, quality, and accessibility. As AI continues to advance, we can anticipate further advancements that will reshape the writing landscape and empower writers with new tools and opportunities.

Chapter

Two

2 Chapter Two: The Analogy between Grammarly and Quillbot

2.1 INTRODUCTION

Writing is a fundamental skill that plays a crucial role in various aspects of human communication. Whether it's academic papers, professional reports, or creative pieces, writing serves as a means to convey ideas, express thoughts, and share information. In this digital age, where information is abundant and easily accessible, the importance of tools that improve writing cannot be overstated. These tools not only aid in enhancing the quality of writing but also ensure that proper citations and references are included, which is essential for academic integrity and credibility. Fortunately, in today's digital era, there are numerous writing tools available that can greatly assist writers in improving their work. This chapter will focus on two well-known examples of such tools –Grammarly and QuillBot.

2.2 An Introduction To Grammarly

Grammarly is an AI-powered digital writing assistant that assists users in enhancing their writing skills by identifying and fixing grammar, spelling, and punctuation errors in real-time. It also suggests improvements to style, tone, clarity, and plagiarism detection. It is available in web, desktop, and mobile applications, and it can be integrated with various browsers, email, and writing tools. Since its launch in 2009 by Ukrainian entrepreneurs Alex Shevchenko, Max Lytvyn, and DmytroLider, who were studying at the University of Waterloo in Canada. In the early days, the founders worked on developing the core technology behind Grammarly, which uses natural language processing and machine learning to analyse text and provide accurate suggestions for improvements. They gained funds for the application's development from investors such as General Catalyst and Spark Capital. Grammarly launched as a free web-based tool in 2011, giving basic grammar and spelling checks. The application evolved over time to include increasingly sophisticated capabilities such as writing style and clarity checks, genre-specific writing recommendations, and plagiarism detection. Grammarly released a mobile app for iOS and Android, making the application even more accessible and convenient for users. Grammarly is now used by millions of individuals throughout the world, ranging from students and professionals to bloggers and content creators. The firm now employs more than 1,000 people and has offices in San Francisco, New York, and Kyiv.

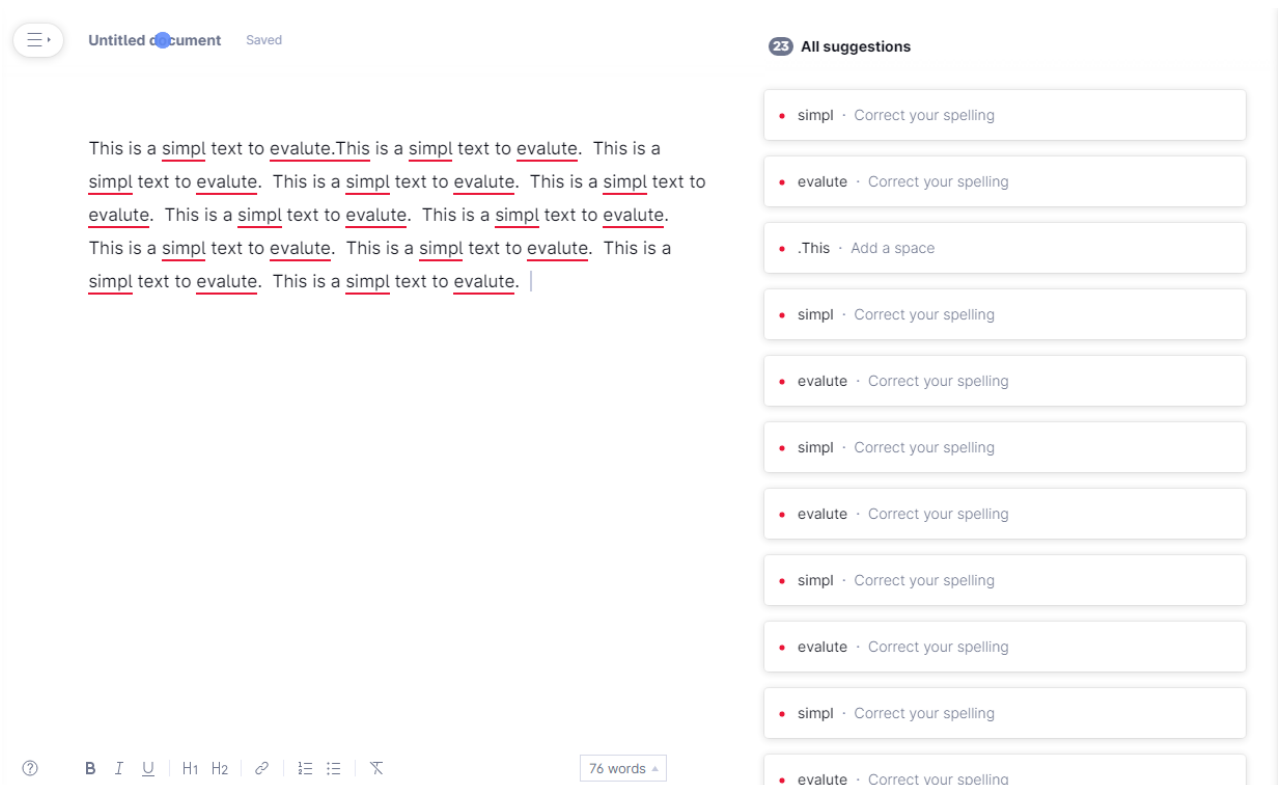
Grammarly has won multiple awards, including being named one of Fast Company's Most Innovative Companies and one of Forbes' 100 Cloud Companies earning millions of active users. In this section we will explore the features that Grammarly has to offer illustrated with examples.

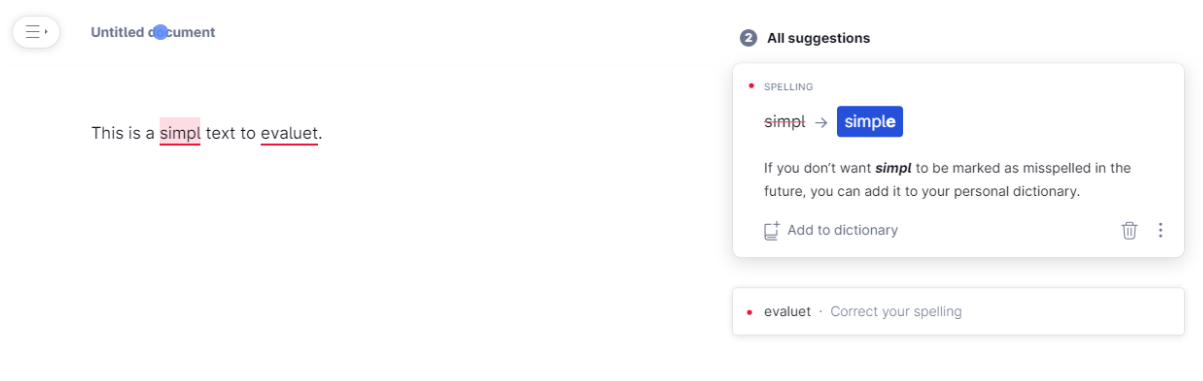
(<https://www.grammarly.com/features>)

2.3 Features of Grammarly

2.3.1 Real Time Grammar correction And Spelling Checking

Grammarly's real-time grammar correction is a vital tool that offers users with rapid feedback on their work. Grammarly analyses users' content as they type and identifies any problems in real time, emphasizing them with a red or yellow line. Critical problems, such as misspellings or severe grammatical faults, are highlighted in red, while recommendations for improvement, such as word choice or style, are highlighted in yellow. When users click on the highlighted text, Grammarly suggests an improvement or correction, as well as an explanation of the issue and why the suggested repair is advised. Users can accept or reject the advice, or they can click "learn more" to get further information and examples of the issue.





Grammarly's real-time grammar correcting feature is powered by advanced algorithms and artificial intelligence technology. The tool analyses text using natural language processing and machine learning to comprehend the context and meaning behind the words. It also consults a massive library of grammatical rules, writing guidelines, and best practices to make accurate and relevant suggestions for improvement. Real-time grammar correcting is a valuable feature for anyone who writes, as it allows users to catch errors and make improvements as they write, rather than having to go back and edit their work later. This can save time and improve the overall quality and effectiveness of written communication.

2.3.2 Style Suggestions:

Grammarly goes beyond basic grammar checking and also offers suggestions for improving the style and clarity of writing. It analyses text for clarity, conciseness, and readability, and offers suggestions to enhance the flow and coherence of the content (Grammarly, 2023). The style checker examines text for typical writing flaws such as wordiness, redundancy, imprecise language, and improper tone. Some examples of the style suggestions provided by Grammarly include: Eliminating unnecessary words and phrases to improve clarity and conciseness. To make writing more interesting and straightforward, utilizing active voice instead of passive voice. Grammarly also gives advice on how to change the tone of the writing, such as avoiding too formal or casual wording and checking for appropriate use of punctuation, capitalization, and formatting to improve readability. The style checker feature in Grammarly is powered by advanced algorithms and artificial intelligence technology. It uses a library of writing rules and best practices to make accurate and relevant recommendations for improvement. The application also takes into account the context and purpose of the writing, providing genre-specific suggestions for improving style and tone using artificial intelligence and natural

language processing. Overall, Grammarly's style checker is a useful tool for anybody looking to enhance the efficacy and impact of their writing. It may assist authors with identifying typical writing problems and provide concrete ideas for change, resulting in clearer, more engaging, and successful communication.

2.3.3 Plagiarism Detection:

Grammarly also includes a plagiarism detection function that looks for evidence of plagiarism in text. This function is intended to assist authors in ensuring that their work is unique and free of unintended plagiarism. When a user uploads a document to Grammarly's editor, the program compares the text to its database of over 16 billion online pages as well as ProQuest's academic databases to find any content that matches other sources. If any matches are found, the text is flagged as potentially plagiarized, and the user is provided with a report that highlights the matches and provides a percentage score for the level of similarity. Users can then go over the highlighted material and determine whether to delete or rephrase any parts that may be deemed plagiarism. The plagiarism report also contains links to the original sources, allowing users to double-check the matches and confirm that any citations or attributions are there. The plagiarism detection function in Grammarly is a useful tool for students, researchers, and professionals who need to assure the originality and integrity of their work. It can assist users in avoiding accidental plagiarism and ensuring that their writing adheres to ethical and academic norms. However, to unlock this feature at the peak of its performance, users have to pay the premium membership which costs \$12.00 USD/monthly.

2.3.4 Writing Tone Feedback:

Grammarly examines the writing tone and presents recommendations for refining it to correspond with the intended audience, as stated by Grammarly (2023). The software can identify if the tone is too casual or formal and provides alternative options to match the desired communication style. This feature enables users to ensure that their writing tone is suitable for the context and audience being addressed.

2.3.5 User-Friendly Interface:

Grammarly's intuitive interface and ease of use make it accessible for writers of all skill levels. It provides real-time suggestions and corrections as users type, making it a valuable tool for improving writing on the go (Grammarly, 2023). Grammarly also offers

explanations and suggestions for corrections, helping users understand the grammar rules and learn from their mistakes

2.3.6 Benefits of using Grammarly:

Using Grammarly as a writing tool offers numerous benefits for users.

1. Grammarly helps users improve their writing skills by providing real-time feedback and suggestions for grammar, spelling, style, and tone (Grammarly, 2023). This helps users identify and correct errors, enhancing the overall quality and accuracy of their writing.
2. Grammarly's tool for detecting plagiarism prevents inadvertent plagiarism by verifying the text against an extensive collection of sources, as stated by Grammarly (2023). This feature supports users in upholding academic honesty and guaranteeing that their work is authentic and accurately cited.
3. Grammarly's user-friendly interface and ease of use make it accessible for writers of all skill levels, helping them learn and apply grammar rules through the explanations and suggestions provided (Grammarly)
4. Grammarly can be accessed and utilized on various platforms, including web browsers, desktop applications, and mobile apps, providing users with convenience and accessibility, as stated by Grammarly (2023).

2.3.7 Examples of how Grammarly can help improving your writing:

Style and Clarity:

In addition to providing fundamental grammar checks, Grammarly offers recommendations to enhance writing style and clarity by examining the text for coherence, conciseness, and readability, as stated by Grammarly (2023). The suggestions provided by Grammarly aid users in avoiding redundant phrases, wordy sentences, and awkward structures, leading to more engaging and effective writing. For example, if a student is writing an essay and wants to improve the clarity and impact of their arguments, Grammarly can provide suggestions to enhance the structure and flow of their writing, making it more effective in conveying their ideas.

2.3.7.1 Plagiarism Detection:

Grammarly's plagiarism detection feature compares text against an extensive database of sources to identify any matching content, helping users avoid unintentional plagiarism and ensure that their writing is original and properly cited (Grammarly, 2023). This is particularly beneficial for students and researchers who need to maintain academic integrity in their work

For instance, if a student is writing a research paper and wants to make sure their work is free from plagiarism, they can use Grammarly's plagiarism checker to scan their text and ensure that any sources they have referenced are properly cited and any unintentional similarities are corrected.

2.3.7.2 Writing Tone

Grammarly examines the tone of writing and suggests enhancements to suit the target audience. Grammarly (2023) can determine whether the writing tone is formal or informal, is excessively formal or informal and offers alternative options to align with the desired communication style. The writing tone tool in Grammarly is meant to assist users in identifying the tone and style of their writing, as well as providing ideas for modifying the tone to better suit the intended audience and purpose of the content. In addition to recognizing the tone, Grammarly offers suggestions for altering the tone to better suit the target audience and purpose of the work. For example, if the tone is too professional for a casual blog post, Grammarly may recommend alternate words or phrasing to make the writing more conversational and engaging.

2.3.7.3 Grammar and spelling

Grammarly utilizing an advanced algorithm to analyses text and detect various grammar and mistakes, such as wrong verb usage, subject-verb agreement errors, and incorrect spelling. The tool then provides real-time suggestions to correct these errors, enabling users to identify and amend errors, resulting in grammatically correct and error-free writing. An example of this could be student writing an essay for school and using Grammarly to check for any grammar or spelling mistakes. The tool could identify that they used the wrong verb tense in a sentence and suggest the correct tense to use. The student can

then make the correction and submit their essay with confidence that it is free of grammatical errors.

(<https://www.grammarly.com/features>)

2.3.8 Limitation of Grammarly

Grammarly is a powerful writing tool that offers numerous benefits, but like any tool, it also has some limitations. Here are some limitations of Grammarly that users should be aware of:

2.3.8.1 Contextual Accuracy:

While Grammarly is effective at identifying grammar and spelling errors, it may not always accurately capture the intended meaning or context of the writing. For instance, it may not fully understand idioms, jargon, or specialized language, leading to suggestions that may not be applicable or may even alter the intended message (Blogs by Grammarly, 2021).

2.3.8.2 Style and Subjectivity:

Grammarly's recommendations to enhance the style and tone of written content are determined by its algorithm's understanding of conventional writing practices. However, these suggestions may not always align with the writer's personal preferences or the specific demands of a particular audience or writing genre. This could result in suggestions that conflict with the writer's intended style or voice, potentially resulting in a loss of individual or creative expression.

To illustrate. Let's say you're a creative writer working on a short story set in a casual, conversational tone. You've intentionally chosen to use contractions in your dialogue and narration to create a more natural, relaxed feel. However, when you run your draft through Grammarly, the software flags all instances of contractions and recommends removing them for a more formal tone.

While you appreciate Grammarly's attention to detail, you decide to ignore the suggestion because the use of contractions is an intentional stylistic choice that helps convey

the voice and tone you're aiming for. By disregarding Grammarly's recommendation, you maintain your individual and creative expression in your writing

<https://self-publishingschool.com/grammarly-review/>

2.3.8.3 Limited Plagiarism Detection:

While Grammarly's plagiarism detection feature is helpful in identifying potential matches with existing sources, it has limitations. It may not detect all instances of plagiarism, such as paraphrasing or rephrasing of content, or identifying sources that are not indexed in its database (Grammarly, 2023). Users should not solely rely on Grammarly's plagiarism detection feature and should use other plagiarism checking tools and techniques for thorough plagiarism detection for example, suppose that you're a student working on a research paper and have used various sources to gather information. You've run your draft through Grammarly's plagiarism detection feature and it shows no matches with existing sources, giving you the green light that your paper is original. However, you are still concerned about the possibility of unintentional plagiarism, as you've used paraphrasing and rephrasing of some of the sources in your paper. To address your concerns, you decide to use additional plagiarism checking tools and techniques, such as Turnitin or Quetext, to thoroughly check for any instances of plagiarism. You also review your paper to ensure that you've properly cited all sources and attributed ideas to their original authors. By taking these additional steps, you can ensure that your paper is plagiarism-free and meets the ethical standards of academic writing.

2.3.8.4 Language Limitations:

Grammarly is primarily designed for English language writing and may not be as effective for other languages. It may not have the same level of accuracy and suggestions for non-English languages, leading to potential errors or limitations in its functionality (Grammarly, 2023).

2.3.8.5 Privacy Concerns:

Grammarly examines and retains the text that is entered by users on its platform in order to offer advice and rectifications. Although Grammarly has stringent privacy regulations, certain users may be worried about the protection and confidentiality of their data, especially for writing that is sensitive or confidential. It is important for users to be aware of these limitations and use Grammarly as a tool to complement their own writing skills, rather than solely relying on it. Users should critically evaluate and verify the

Chapter Two: Quillbot

suggestions provided by Grammarly to ensure they align with their intended message and writing style. Additionally, users should take necessary precautions to protect their privacy and confidentiality while using Grammarly or any other online writing tool

For instance, assuming you're a lawyer working on a legal brief for a high-profile case. As part of your writing process, you decide to use Grammarly to help catch any errors or issues in your writing. However, you're concerned about the confidentiality of the information contained in your brief, and whether Grammarly will retain or share any of this information.

To address your concerns, you decide to take necessary precautions, such as not including any identifying information in the text you enter into Grammarly, and reviewing the platform's privacy policy to understand how they handle user data. You also critically evaluate and verify any suggestions provided by Grammarly to ensure they align with your intended message and legal style.

By taking these additional steps, you can protect your privacy and confidentiality while still using Grammarly as a tool to complement your own writing skills.

2.4 An Introduction on Quillbot

Quillbot, on the other hand, is an AI based tool that utilizes an advanced natural language processing (NLP) algorithm to generate high quality content quickly and efficiently. It has become a preferred option for writers, students, and professionals who require a fast and accurate way to produce original content while avoiding plagiarism. QuillBot was established in 2017 by Rohit Gupta, Anil Jason, and David Silin, three computer science students. when they identified the need for a more effective way to write and paraphrase the content. According to an article by Forbes, the team wanted to create a tool that would give users the power to say what they mean in their own words, without the frustration and time consuming. Since its launch, quillbot has gained significant attention and praise from users and industry experts, according to an article by TechCrunch, the platform has "proven to be a valuable tool for anyone looking to improve their writing skills and increase their efficiency. QuillBot is a powerful language model that has been trained on vast amounts of text data and offers a variety of features for text generation and editing. Some of the notable features of QuillBot, reinforced by its references, include:

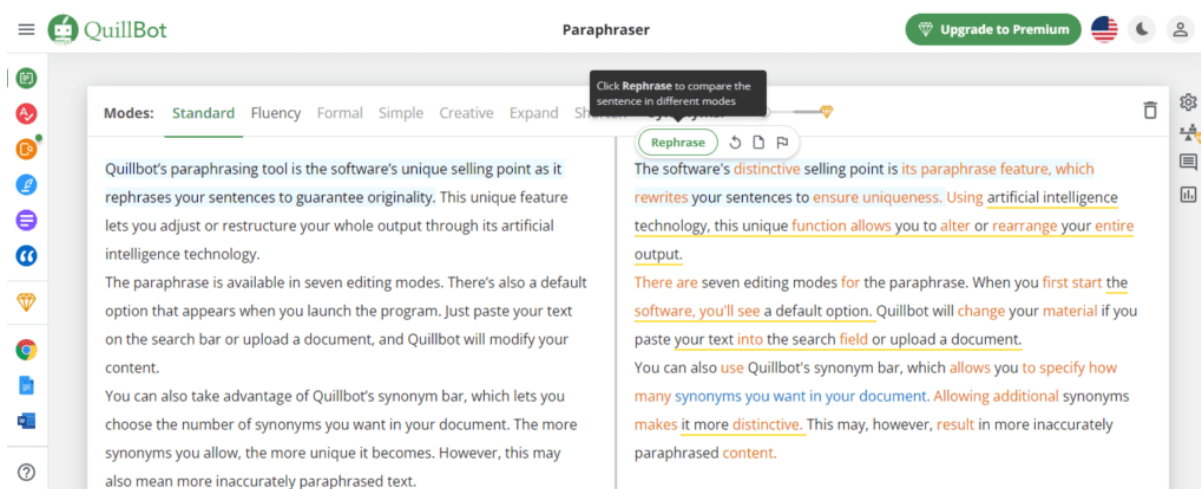
Chapter Two: Quillbot

(Englisia: Journal of Language, Education, and Humanities November 2021. Vol. 9, No. 1, 183-196
QuillBot as an online tool: Students' alternative in paraphrasing and rewriting of English writing)

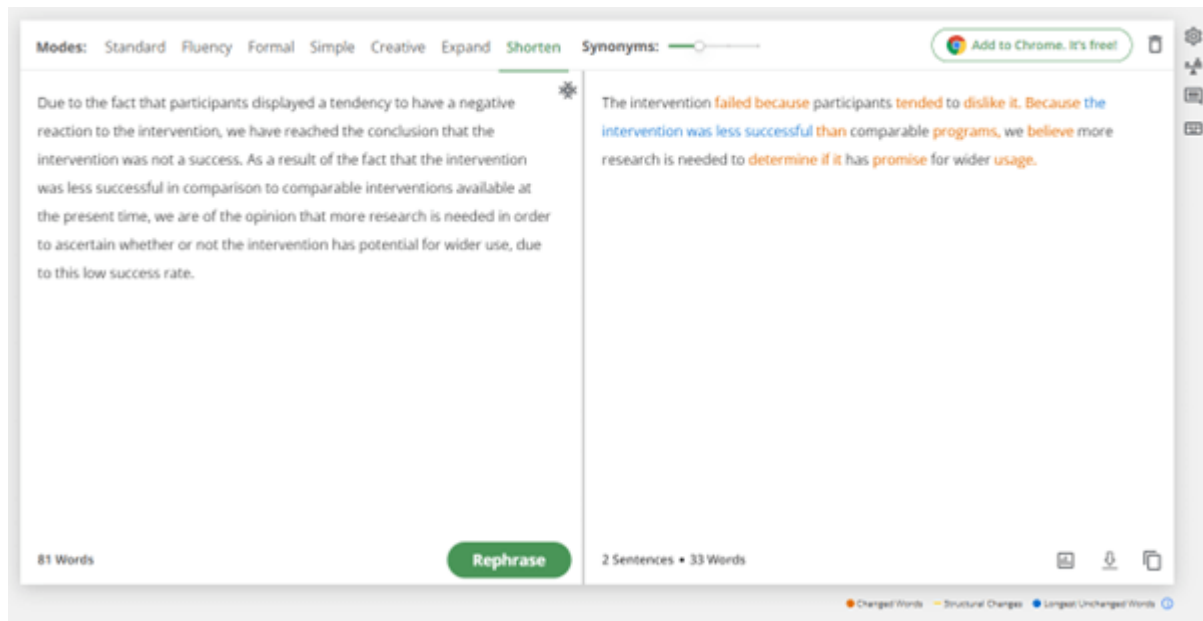
2.5 Features of QuillBot

2.5.1 Paraphrasing:

The purpose of Quillbot is to produce reworded text that maintains the intended message of the original text, but with different word and sentence construction. This function is supported by the fact that Quillbot has been trained on various text sources, enabling it to create precise and appropriate paraphrases that are both grammatically sound and contextual relevant. The Free plan Offers a choice between two modes, while the premium plan offers an additional five modes. These modes can help improve your text by using more or fewer synonyms to convey your intended meaning. For instance, the formal mode may suggest a more complex term, while the simple mode selects a more straightforward and commonly understood expression. The available modes include Standard, Fluency, Expand, Shorten, Formal, Simple, and Creative. Moreover, the premium plan allows you to select freeze words, which are words or phrases that won't be altered while testing different modes. Freeze words can be useful if you want to maintain a specific branded phrase or a unique reference that may not be recognized by Quillbot



This picture above shows the result of paraphrasing using Quillbot in the free version especially in standard mode



This picture above shows the result of paraphrasing using Quillbot in the premium version in shorten mode.

2.5.2 Summarizing

QuillBot has the ability to generate concise summaries of longer texts, such as articles or documents. It uses its training data to identify the most important information and distil it into a shorter version while preserving the original meaning. Also you have the option to choose the length of the summary you want, and decide whether you want it to be shorter or longer .Once you are satisfied with the generated summary ,you can either copy it or download it

2.5.3 Word/Sentence Expansion

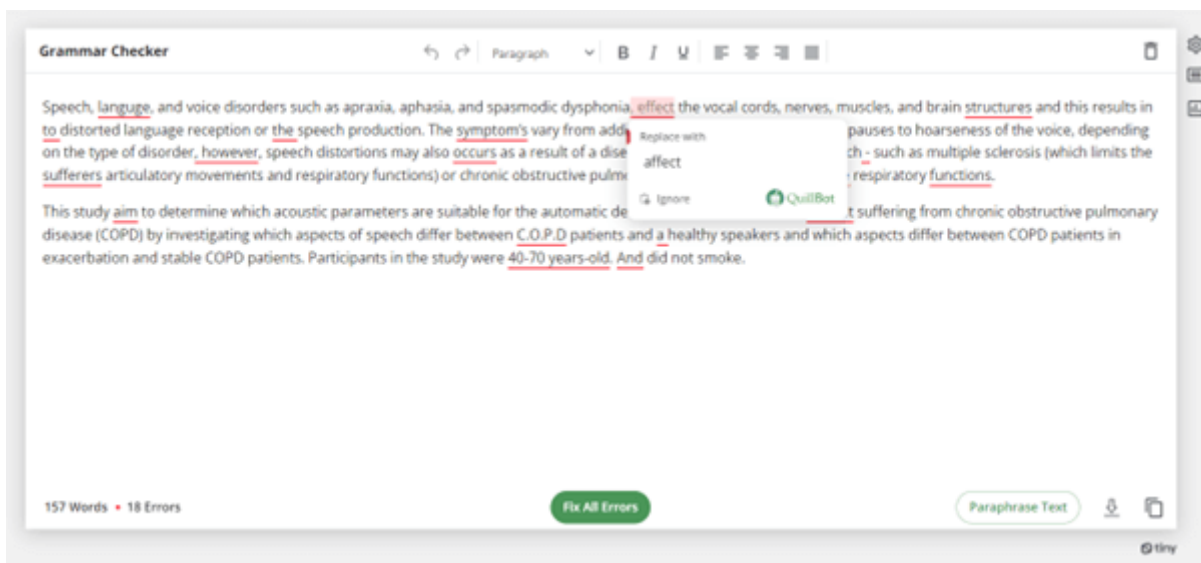
QuillBot has the ability to elongate a word or sentence into a more extensive form while preserving its coherence and pertinence. This remarkable feature proves to be immensely beneficial for creating comprehensive and intricate descriptions or expansions of a given input. for instance:

Original sentence: The study identified a link between physical activity and mental wellness

Expanded sentence: The research investigation established that there existed a significant correlation between physical exercise and psychological well-being

2.5.4 Grammar and Style Correction:

QuillBot can identify and correct grammar and style errors in text, making it a valuable tool for proofreading and editing. It leverages its language model training to accurately detect and suggest corrections for various types of errors, including syntax, verb tense, and word choice.



The above image shows how Quillbot identifies errors, and highlight them with red line. When users click on the highlighted text, Quillbot provides recommendations for corrections or improvements.

2.6 The Benefits of Using Quillbot

2.6.1 Paraphrasing:

Quillbot's ability to create precise paraphrases by utilizing varied text sources is quite advantageous. This feature enables that tool to preserve the original meaning of the text, while also using different sentence structures and words. As a result, writers who aim to evade plagiarism, generate multiple versions of the same text, or simplify complex sentences while still retaining the intended message can benefit greatly from using Quillbot.

For instance, a student who is composing a research paper may need to paraphrase a specific paragraph to avoid plagiarism. QuillBot can help by generating an accurate rewording of the original text while preserving its meaning

2.6.2 Summarization

Quillbot's summarization feature is a valuable tool for condensing longer texts. With its deep learning capabilities, QuillBot can identify the most important information in a text and generate concise summaries while preserving the original meaning. This can be particularly useful for students who need to summarize lengthy articles or documents for research purposes, or professionals who need to create executive summaries for reports or presentations

By way of illustration, a student is conducting research on a complex topic and comes across a lengthy academic article that contains a lot of information. Reading through the entire article may take too much time and effort, so the student can use Quillbot's summarization feature to generate a condensed version of the article that captures the essential points. This summary can help the student grasp the main ideas and arguments of the article quickly and efficiently, making their research process much smoother.

2.6.3 Grammar and style correction:

As a model trained on vast amounts of textual data, QuillBot possesses the ability to detect and provide recommendations for grammar and style errors, such as syntax, verb tense, and word selection. This feature can be immensely beneficial for writers and students who desire their writing to be refined and grammatically accurate, thereby reducing the time and effort spent on proofreading and editing.

For instance, a professional writer can also use Quillbot's grammar and style correction feature to ensure that their work is of high quality. By using this feature, the writer can save time and effort in the editing process, ensuring that their writing is polished and ready for publication.

2.6.4 Quillbot's context-aware writing capabilities:

QuillBot possesses the ability to create text that is both contextually appropriate and coherent by analyzing the input text and generating suitable responses. This feature can be

particularly useful for writers who aim to maintain consistency in their writing style and tone or when producing content that is pertinent to a specific topic or audience.

For example, a content creator who is producing material for a specific audience can also benefit from Quillbot's contextual generation feature. By analyzing the input text and generating responses that are relevant to the intended audience, the content creator can ensure that the material is engaging and relatable, leading to a more effective communication with the target audience.

[\(https://quillbot.com/blog/\)](https://quillbot.com/blog/)

2.7 Examples of how Quillbot helps improving writing

2.7.1 Paraphrasing:

QuillBot is capable of creating precise paraphrases of text while still maintaining the initial meaning. This functionality is useful for avoiding plagiarism, producing multiple iterations of the same content, or simplifying complex sentences.

For instance, in case a learner is writing a research paper and needs to include information from a source. However, the student doesn't want to copy the source word-for-word to avoid plagiarism. In this scenario, QuillBot can be used to generate accurate paraphrases of the original text, providing the student with alternative ways to convey the same message without violating any ethical guidelines.

2.7.2 Summarization:

QuillBot has the ability to produce brief summaries of lengthy texts, compacting the primary ideas while preserving the original meaning. This feature can come in handy when summarizing lengthy documents, research papers, or reports for research purposes, or for generating executive summaries.

For example, let's assume that a marketing professional needs to prepare a summary of a lengthy market research report for a client. The professional can use QuillBot to generate a brief summary that highlights the significant findings of the report, saving time and effort in manually summarizing the report.

2.7.3 Grammar and style correction:

QuillBot possesses the capability to precisely identify and propose corrections for grammar and style errors, such as syntax, verb tense, and word choice. This can be advantageous for writers who desire to guarantee their writing is refined and grammatically accurate.

For instance, let's say a student is writing an essay and is unsure about whether to use "affect" or "effect" in a sentence. QuillBot can suggest the appropriate usage based on the context of the sentence, assisting the student in avoiding errors in their writing.

2.7.4 Context-aware writing:

QuillBot can generate text that is contextually relevant and coherent, taking into account the input text and producing appropriate responses. This can help writers maintain consistency in their writing style or tone, or when generating content that is relevant to a specific topic or audience. For instance, if a writer needs to generate content for a specific audience, QuillBot can provide suggestions that align with the intended tone and style

2.7.5 AI writing assistant:

QuillBot offers instantaneous feedback and recommendations to assist users in enhancing their writing abilities. This might entail suggestions for improving coherence, restructuring sentences, or tailoring content to a particular audience. If a user encounters difficulty with a specific sentence or paragraph, QuillBot can suggest ways to refine the text and make it more impactful. For instance, if a student is working on an essay and needs help with sentence structure, QuillBot can offer suggestions to improve the flow of the text and make it easier to understand

2.8 Limitations of Quillbot

2.8.1 Reliance on pre-existing data for training:

Quillbot's language model is developed using a large collection of text from the internet, which implies that it could possess biases, errors, and constraints of the data. Therefore, users should be aware that Quillbot's generated content may not always be entirely original or contextually precise, and they should be cautious and verify the information when using its outputs

Example: If a user relies solely on Quillbot's generated content to write an academic paper, they may inadvertently include inaccurate information or biases without fact-checking the content themselves. Therefore, users should always verify the accuracy of the generated content before submitting or publishing it.

2.8.2 Challenges in grasping human emotions, cultural nuances, and context.

Quillbot's text generation may lack the ability to comprehend emotions and cultural nuances like humans, resulting in outputs that can sound robotic or insensitive. This can pose a challenge, particularly when dealing with diverse audiences or sensitive topics. For instance, if a user wants to generate content that requires cultural sensitivity or emotional intelligence, Quillbot's output may not fully capture the intended meaning or tone.

Quillbot's suggestions for writing style, tone, and word choice may not always align with the subjective preferences of individual users. Therefore, writers should use their own discretion in deciding whether to accept or disregard the tool's recommendations. Example: A writer may prefer a more informal tone in their writing, while Quillbot may suggest a more formal tone. In this case, the writer should decide whether to accept Quillbot's suggestion or make the conscious decision to maintain their preferred tone.

2.8.3 Divergence between Quillbot's suggestions and writer preferences

Users should carefully read and comprehend the privacy policies and terms of use of QuillBot or any other AI-powered writing tool before using it. They must be mindful of the content they enter into QuillBot and make sure not to share any sensitive or confidential

information that could be retained or utilized by the AI model. It is crucial to take these precautions to safeguard their privacy and protect their data.

Example: Before using QuillBot to write a research paper, a student must first read and understand its terms of use and privacy policies. They must also be careful not to input any personal information, such as their address or phone number, to avoid risking their privacy

2.8.4 Difficulties in producing technical subjects:

It may not have the specialized knowledge or vocabulary required for highly technical or domain-specific writing. This can limit its usefulness for professionals in fields such as science, medicine, law, or finance who require precise and accurate terminology for example, if a medical researcher needs to write a technical report on a new drug, QuillBot may not have the necessary knowledge or vocabulary to accurately convey the specific medical terms or scientific concepts involved. As a result, the researcher may need to rely on their own expertise or consult with a subject matter to ensure the accuracy and precision of the final document

https://www.researchgate.net/profile/Rahmah-Fithriani-3/publication/366307939_Post-Graduate_Students'_Perceptions_of_Quillbot_Utilization_in_English_Academic_Writing_Class/links/63b389d2c3c99660ebc43710/Post-Graduate-Students-Perceptions-of-Quillbot-Utilization-in-English-Academic-Writing-Class.pdf

2.9 Similarities between Grammarly and Quillbot

Grammarly and Quillbot are two of the most popular online writing tools available today. Both are designed to help users improve their writing skills, but they use different methods to achieve this goal. Firstly, both Grammarly and Quillbot are AI-powered writing tools. They use advanced algorithms to analyse text and provide suggestions for improvement. This means that they can help users identify errors in grammar, punctuation, spelling, and style. Additionally, both tools offer real-time feedback as users type, so they can make corrections as they write. Secondly, both tools offer a wide range of features to improve writing. For example, Grammarly and Quillbot can suggest alternative word

choices, provide synonyms, and identify repetitive phrases. They can also help users adjust the tone of their writing, from formal to informal, or from friendly to professional. Thirdly, both tools are available as browser extensions, desktop apps, and mobile apps. This means that users can access them from anywhere, and use them with different devices. Additionally, both Grammarly and Quillbot offer a user-friendly interface, making them easy to use for people of all skill levels. Fourthly, both Grammarly and Quillbot offer premium versions, which provide additional features for users who need more advanced writing tools. For example, Grammarly Premium offers a plagiarism checker, while Quillbot Premium offers more in-depth text analysis and suggestions.

In conclusion, while Grammarly and Quillbot use different algorithms and methods to improve writing, they share many similarities. Both are AI-powered writing tools that offer a wide range of features, real-time feedback, and are available across different devices. Additionally, they offer premium versions for users who need more advanced writing tools. Overall, Grammarly and Quillbot are valuable resources for anyone looking to improve their writing skills, and both have proven to be effective tools in helping people write better

[\(https://contentforward.io/marketing-tools/quillbot-vs-grammarly/\)](https://contentforward.io/marketing-tools/quillbot-vs-grammarly/)

2.10 Differences between Grammarly and Quillbot

Grammarly and Quillbot are two digital writing aids that are designed to enhance the quality of written text. Despite their shared functions, they have discernible variations concerning their features, capabilities, and user interface. In this article, I will explore the major differences between Grammarly and Quillbot.

The first significant difference between Grammarly and Quillbot is their primary focus. Grammarly is primarily a grammar checker that helps users identify and correct grammatical errors, spelling mistakes, and punctuation issues. It also provides suggestions for style improvements, such as making sentences more concise or using more effective vocabulary. On the other hand, Quillbot is primarily a paraphrasing tool that helps users rephrase sentences and paragraphs while retaining the meaning and context of the original text. This feature makes Quillbot particularly useful for people who need to rewrite content for various reasons, such as avoiding plagiarism or adapting text to different contexts. The

second difference is in the way they provide feedback. Grammarly provides real-time feedback as users write, indicating errors and suggesting corrections. It highlights the problematic text and provides a detailed explanation of the issue, as well as options for correcting the problem. Quillbot, on the other hand, provides suggestions for rephrasing or paraphrasing the text once the user has entered the text. The user can then choose from a range of options suggested by the tool to improve their text. The third difference is the user interface. Grammarly has a sleek and easy-to-use interface that displays corrections and suggestions in real-time. It also provides a detailed explanation of the grammar rules and examples of how to use them correctly. Quillbot has a more straightforward interface, with a text box where users can paste their text and a range of options for paraphrasing the text. Quillbot also has a simple, modern design that is easy to navigate. Finally, there is a difference in the pricing and available plans.

Grammarly has a free version that offers basic grammar checking and spelling correction features. It also has a premium version that provides more advanced features such as a plagiarism checker, style suggestions, and vocabulary enhancement. Quillbot has a free version that provides basic paraphrasing features. It also has a premium version that provides more advanced features such as sentence rewriting, grammar checking, and the ability to integrate with other writing tools.

To summaries, Grammarly and Quillbot are potent writing tools that offer crucial support to individuals aiming to enhance their writing abilities. Despite sharing some resemblances, their differences in main emphasis, feedback techniques, user interface, and pricing schemes differentiate them as tools with unique advantages and limitations. Thus, users should evaluate their requirements and preferences to determine the most appropriate tool that aligns with their specific writing objectives.

(<https://www.techradar.com/reviews/grammarly-writing-tool>)

2.11 Conclusion

Our objective in this chapter was to extensively examine and compare two prominent writing tools, Grammarly and Quillbot, with the intention of identifying their distinct features and functionalities. Through our meticulous research, we have gained valuable insights into

how both Grammarly and Quillbot contribute significantly to enhancing users' writing skills. Grammarly, a commendable tool, stands out in its exceptional ability to perform comprehensive grammar and spelling checks. It provides users with real-time corrections and invaluable suggestions that elevate the accuracy and clarity of their writing. Moreover, Grammarly extends its support by offering style suggestions, empowering users to refine their writing style and create content that is both engaging and captivating. An additional advantage lies in Grammarly's built-in plagiarism

Detection feature, assuring the originality and authenticity of the written work. In contrast, Quillbot distinguishes itself as a specialized tool dedicated to paraphrasing and rewriting text. Its arsenal of features encompasses synonym suggestions, sentence rephrasing, and the capability to manipulate fluency and tone. These remarkable functionalities empower users to generate unique and plagiarism-free content while staying true to the original meaning and intent of the text. While Grammarly and Quillbot share commonalities as AI-powered writing tools accessible through the web, their divergent strengths set them apart. Grammarly's focus revolves around grammar checking, style recommendations, and the added advantage of plagiarism detection. On the other hand, Quillbot's forte lies in facilitating paraphrasing and rewording, providing users with synonym alternatives and the freedom to adjust fluency and tone. Consequently, Grammarly proves to be an optimal choice for individuals aiming to enhance their grammar accuracy and refine their writing style, while Quillbot stands as an indispensable resource for those seeking assistance with paraphrasing and rewording tasks. Users can make an informed decision based on their specific writing needs and objectives, selecting the tool that aligns most effectively with their requirements. In the pursuit of continually improving writing skills, the availability of tools such as Grammarly and Quillbot provides invaluable support to writers across various domains. These tools act as catalysts for creativity, helping users elevate the quality of their written work. By harnessing the power of technology and AI-driven innovations, writers can embark on a journey of growth and excellence in their craft

CHAPTER THREE

3 Chapter Three: Data Collections, Data Analysis and Interpretation

3.1 Introduction

This chapter aims to link the theoretical framework of the study to the practical one with the purpose of interpreting the use of word processing applications that use artificial intelligence implementing a quantitative research approach. Our Research will consist predominantly of individuals that are familiar with the term AI and its effect on making writing easier. The research plan, including the description of the setting, the design, the samples, the tools, the data analysis, and the interpretation as well are primary components of this chapter. The purpose of it is to compare two-word processing applications that use AI which are Grammarly and Quillbot.

3.2 Research design

Our research design serves as the architectural blueprint of the research project, which is quantitative due to the nature of the analysis. Considering that the study is done to evaluate students' writing capabilities and the impact of Ai writing assistant on their writing competence and competency, we used an online questionnaire to collect information from English language students focusing only on questioning 80 student from two levels at the university of Tiaret third year LMD and Master One students. The questionnaire is addressed only to students who actually use these two applications to get accurate feedback on how they interact with them.

3.3 Participants and procedures

In recent years, the use of online questionnaires has become increasingly prevalent in academic research due to their convenience, accessibility, and efficiency in data collection. This chapter focuses on the participants and procedures related to the distribution of a questionnaire to university students using Google Forms.

3.4 Sampling

The participants in this study consist of L3 and Master one students. The target population was selected to ensure a diverse range of perspectives and experiences related to WPA and Ai. By involving the two levels who often engage in extensive writing tasks, valuable insights could be gathered regarding the impact of Ai based word processors. Participants were recruited through university-wide emails, online platforms, and social media groups. The recruitment message provides an overview of the research project (as seen at the top of the questionnaire). Clear instructions were provided on accessing and completing the online questionnaire, which was hosted on Google Forms. The use of Google Forms ensured a straightforward and user-friendly interface, making it less complicated for participants to respond.

3.5 Data Collection Tools:

The online questionnaire consisted of 20 structured questions designed to explore the impact of AI-based word processing applications, specifically Grammarly and Quillbot. The questionnaire sought to understand participants' perceptions, experiences, and usage patterns of these tools. Careful attention was given to the clarity, relevance, and flow of the questions to maximize response accuracy and engagement. Participants accessed the online questionnaire through the provided link and completed it at their convenience within a designated time frame. Reminder emails were sent at specific intervals to encourage participation and increase the response rate. The data collected through Google Forms were securely stored and accessible only to the researchers. The questionnaire was launched for 18 days on Google forum reaching 80 students in which 57 of them are females and 23 males although the main variable of the study is not gender.

The use of a questionnaire allows for efficient data collection from a large number of participants within a relatively short period. By distributing the questionnaire online, it eliminates the need for face-to-face interactions or interviews, which can be time-consuming and resource-intensive. University students often have busy schedules, balancing academic responsibilities, extracurricular activities, and personal commitments. The online questionnaire

Offers flexibility, allowing participants to complete it at their convenience and from any location with internet access. This convenience increases the likelihood of participants and reduces potential barriers to involvement. Also, online questionnaires offer a degree of privacy and anonymity for participants, encouraging open and honest responses. By using Google Forms, which allows for the removal of personally identifiable information, participants' confidentiality is maintained. This anonymity can foster a sense of comfort and encourage participants to share their genuine experiences and opinion. Our questionnaire design can incorporate both quantitative and qualitative questions, enabling a comprehensive understanding of the impact of AI-based word processing applications. Quantitative data provide numerical insights, facilitating statistical analysis and comparisons, while qualitative data capture rich narratives, experiences, and individual perspectives.

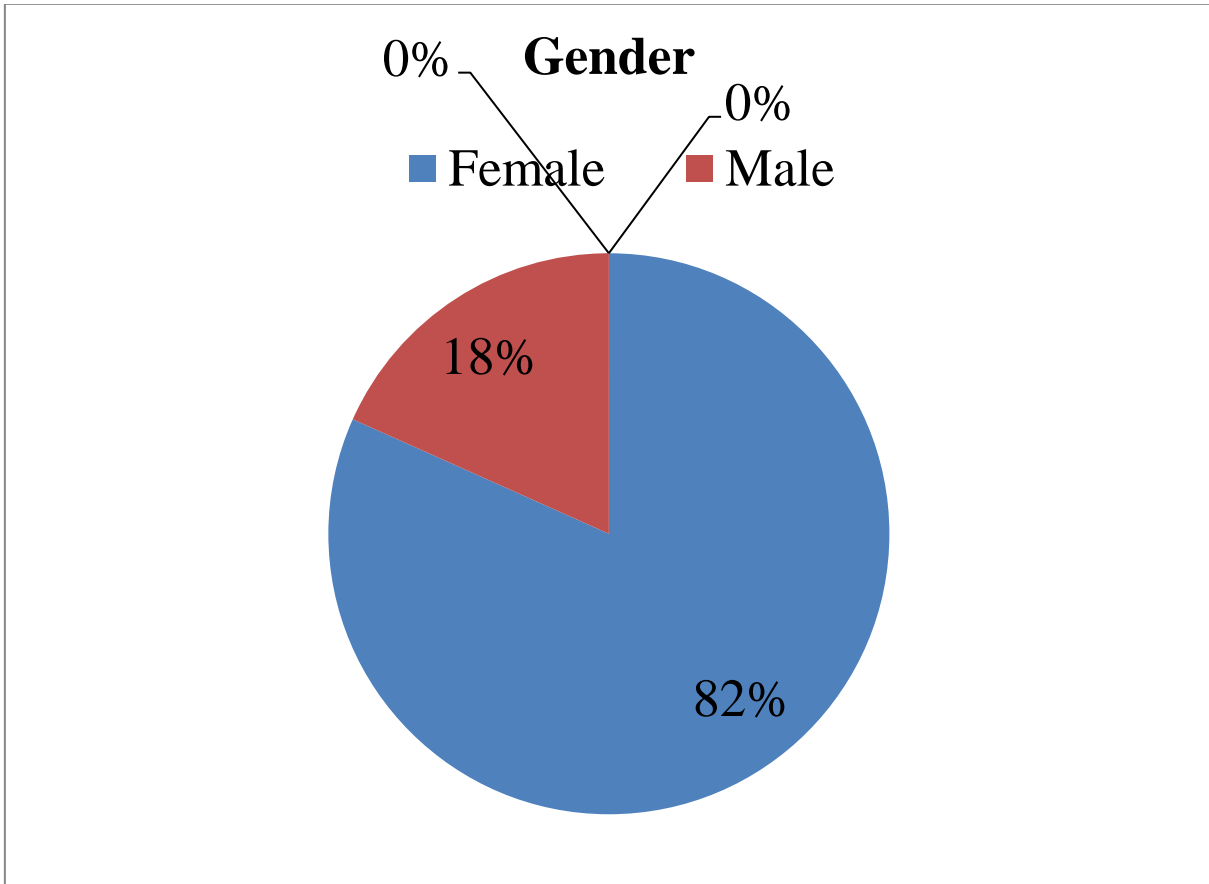
3.5.1 Description of the Questionnaire

A questionnaire is a type of data collection tool that consists of a series of inquiries and other prompts intended to elicit responses' information. This study's questionnaire is divided into four sections including 20 questions, each sections includes 5 questions. The first section includes questions about age, gender, academic level and English proficiency level plus the learning methods students tend to use in improving their English. the second section starts with questions investigating how often students use English in their daily basis focusing on the purpose of their writing. The third part includes questioning students if they are using any grammar checking apps and how they see them giving only two applications which are Grammarly and Quillbot in a form of closed ended and open questions. The fourth and last section whole purpose was to see how students compare applications the use artificial intelligence (Grammarly, Quillbot) to more traditional methods such as writing exercises, while the other questions were targeted to observe which of the two applications is more useful and more effective, the last question was addressed to students to provide their opinions on the features they think will be more helpful to improve this kind of applications.

3.6 Data Analysis and Interpretation

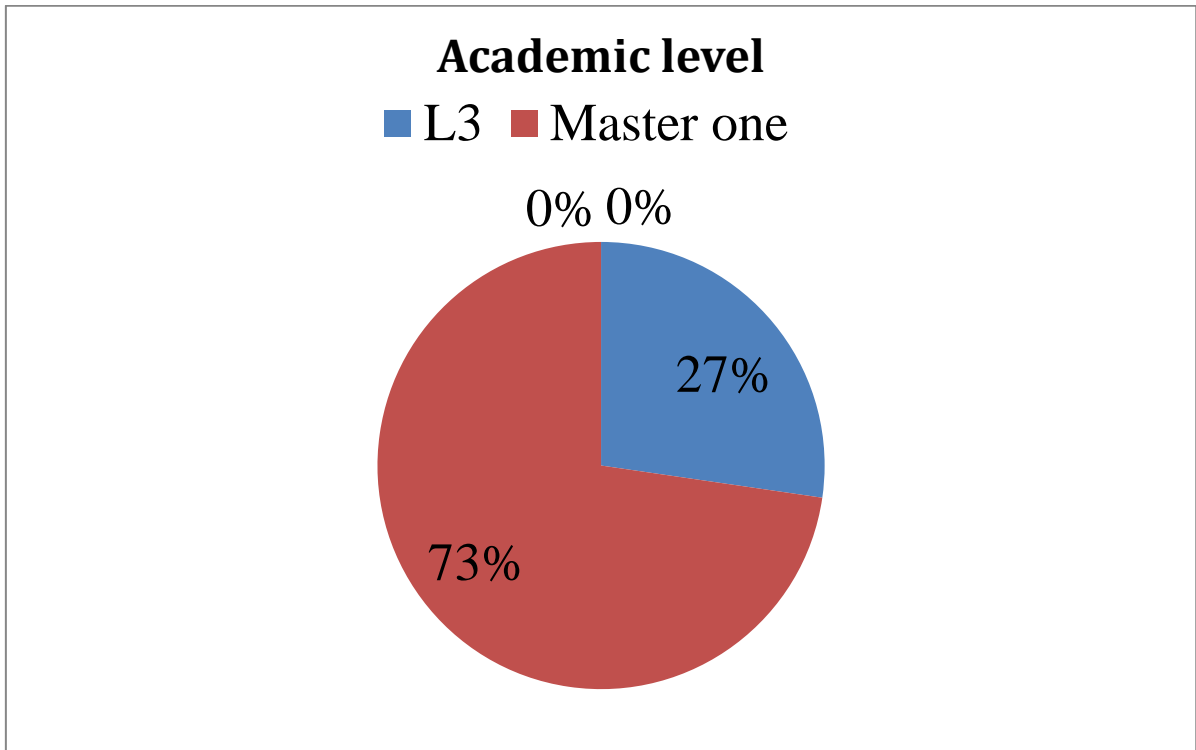
3.6.1 The Analysis of The Questionnaire

3.6.2 Question 1



The distribution of the online questionnaire among the participants revealed an interesting demographic pattern. It was observed that the majority of third-year LMD and Master one students who participated in the survey were females. Out of the total sample size, a significant portion of 57 participants, representing more than 80%, were female students. On the other hand, male respondents accounted for approximately 18% of the sample, with a total of 23 participants. The dispersal of the online questionnaire revealed a gender disparity within the sample, with a higher participation rate of female students compared to their male counterparts. Recognizing this demographic pattern highlights the need for future studies to ensure a more balanced representation of gender.

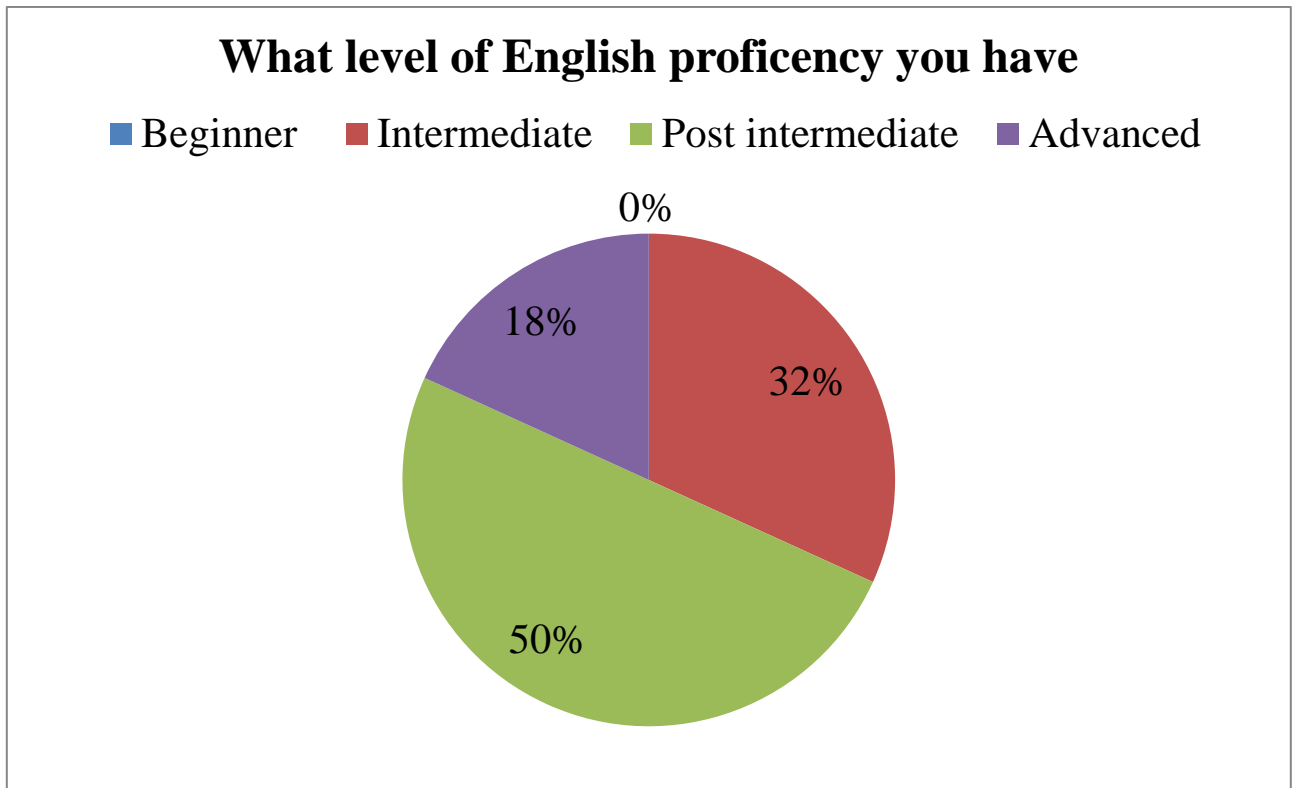
3.6.3 Question 2



The dominance of Master one students within the sample can be attributed to several factors related to their engagement with social media and online platforms. One possible reason is that Master one student, being in a more advanced stage of their studies, may have a higher level of digital literacy and familiarity with online communities. This could lead to their active participation in social media groups and a greater likelihood of encountering the questionnaire link. On the other hand, the challenges encountered in reaching third-year students might be attributed to various factors. It is possible that third-year students have fewer dedicated social media groups or that their level of engagement in those groups is relatively lower. Additionally, third-year students might have had different priorities or limited exposure to the specific social media platforms where the questionnaire was shared. To address the challenges encountered in reaching third-year students, alternative recruitment strategies could be considered in future studies. Researchers could explore additional channels for distribution, such as email

communication, direct outreach through academic departments, or leveraging other online platforms where third-year students are more active.

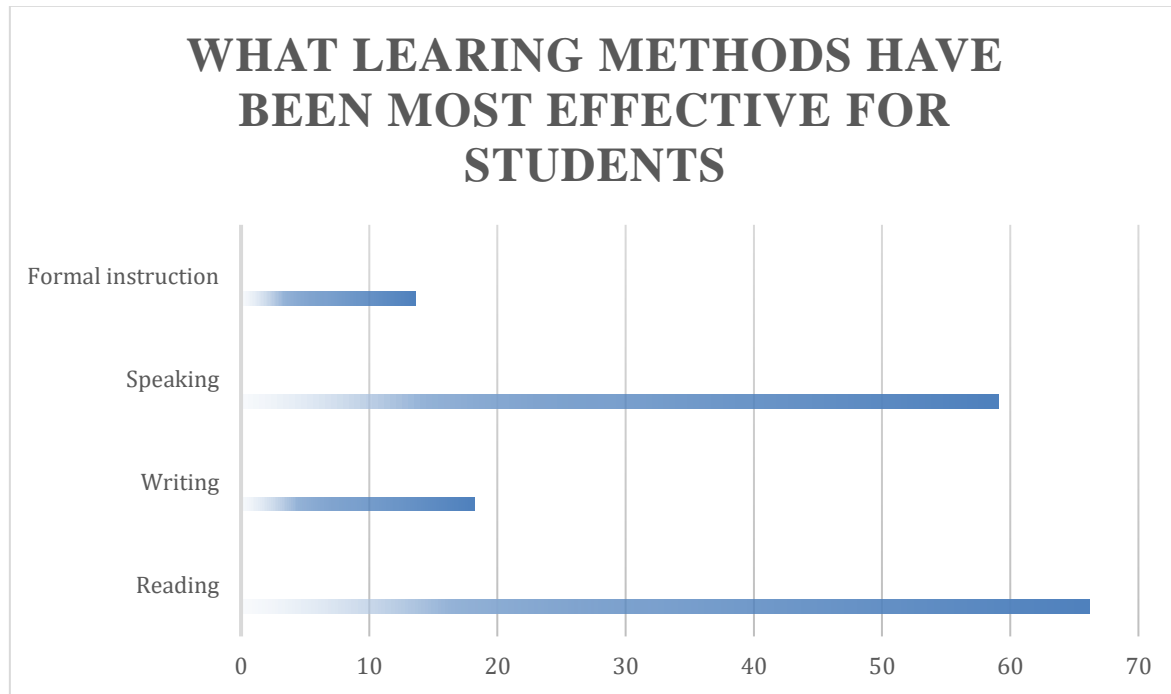
3.6.4 Question 3



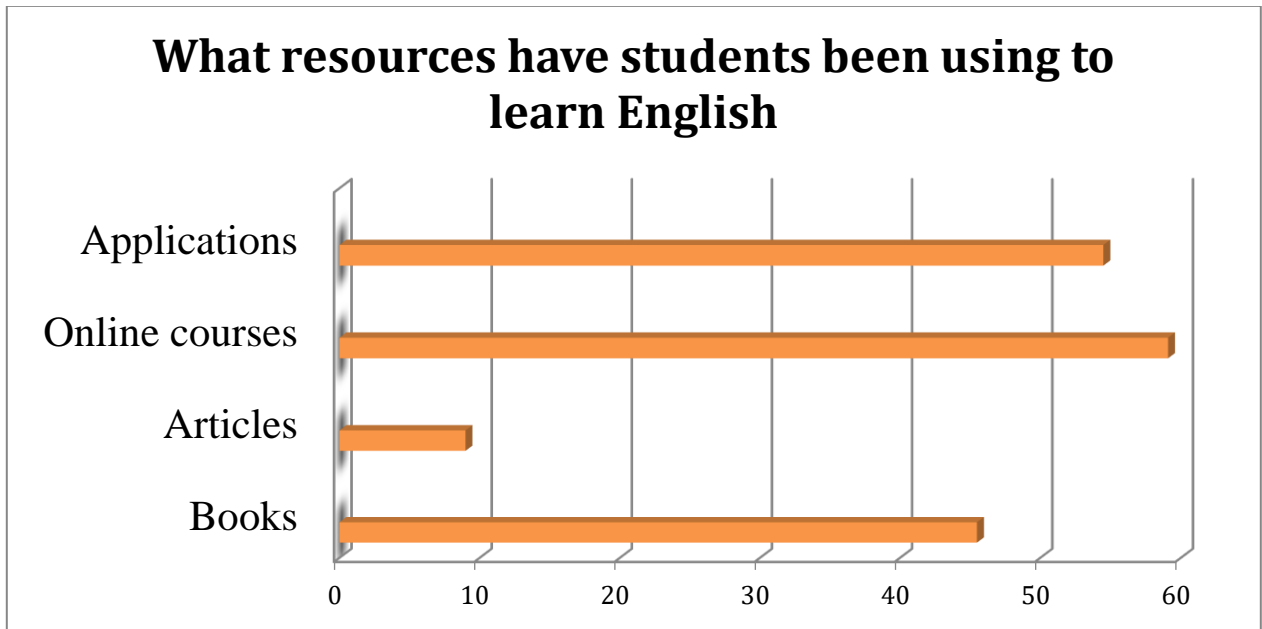
By including participants from various proficiency levels, ranging from post-intermediate to advanced, our study aimed to gain a comprehensive understanding of the challenges and preferences faced by English language learners in the context of writing. The distribution of proficiency levels within the sample provided valuable insights into the diverse perspectives and needs of the participants. The fact that none of the participants identified as beginners indicates that our study focused on a relatively more advanced group of learners. The majority of participants, accounting for 50% of the sample, considered themselves to be post-intermediate. Additionally, 32% of the participants identified as intermediate, indicating that they have a solid foundation in English but still face certain obstacles in their writing. Surprisingly, only 18% of the participants regarded themselves as advanced. These learners are likely to possess a higher level of linguistic competence and demonstrate more sophisticated

writing abilities. By incorporating participants from various proficiency levels, our study can shed light on the specific difficulties encountered by learners in writing.

3.6.5 Question 4

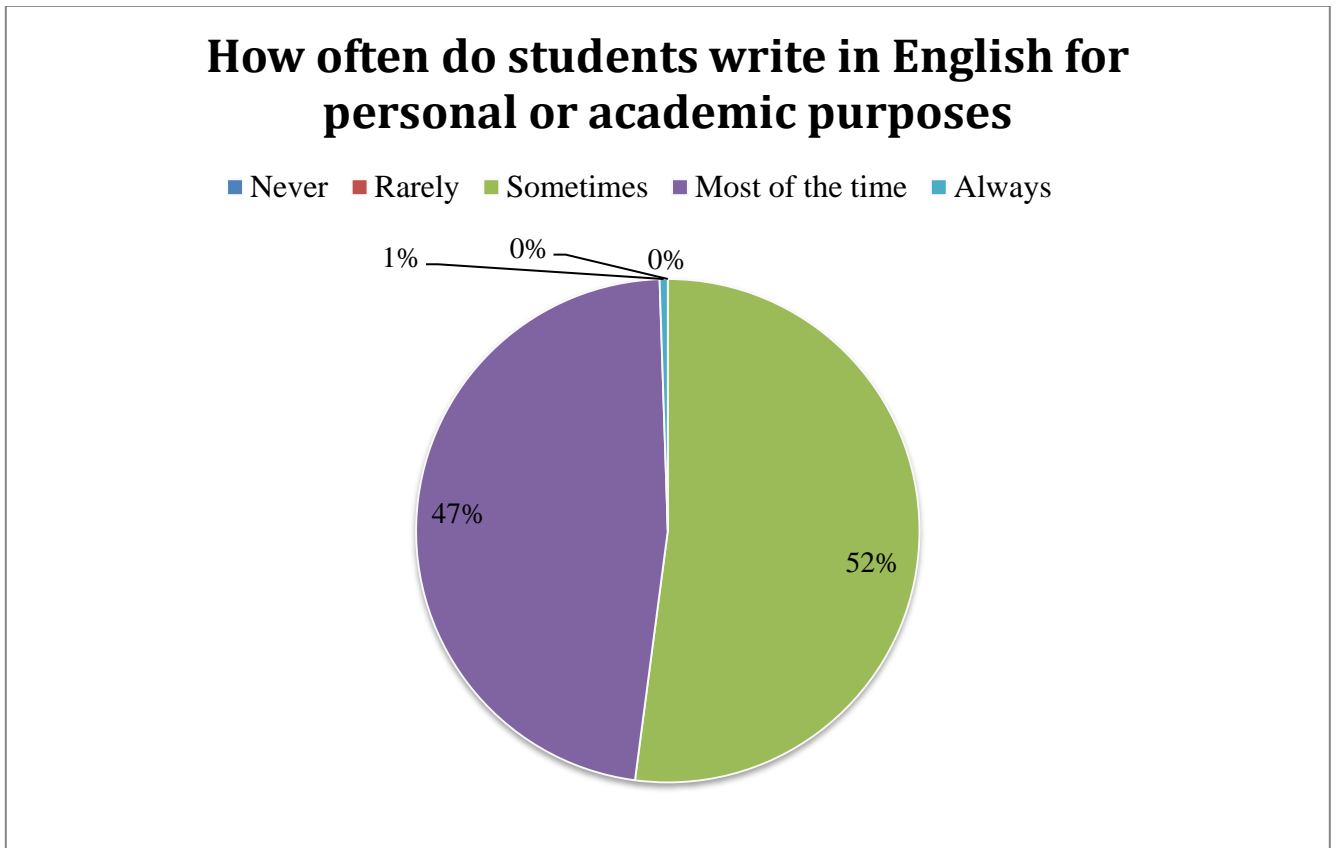


After analyzing the tools used in learning English through the questionnaires administered to our participants, we focused on understanding their preferences and perceptions regarding four specific methods: reading, writing, speaking, and formal instruction (tutoring). Our primary objective was to gain insights into which tools the participants found most effective and suitable for their English language learning journey. The findings of our analysis revealed intriguing patterns. Among the surveyed participants, an overwhelming majority, comprising over 65%, identified reading and speaking as the most favorable tools for learning English. This result suggests that these individuals place significant emphasis on actively engaging with the language through immersive reading experiences and oral communication. Surprisingly, our analysis unveiled that formal instruction, represented by tutoring or academic studies, was perceived as the least preferable method among the participants. This finding suggests that a significant proportion of the participants do not rely heavily on traditional classroom-based language instruction to enhance their English proficiency.

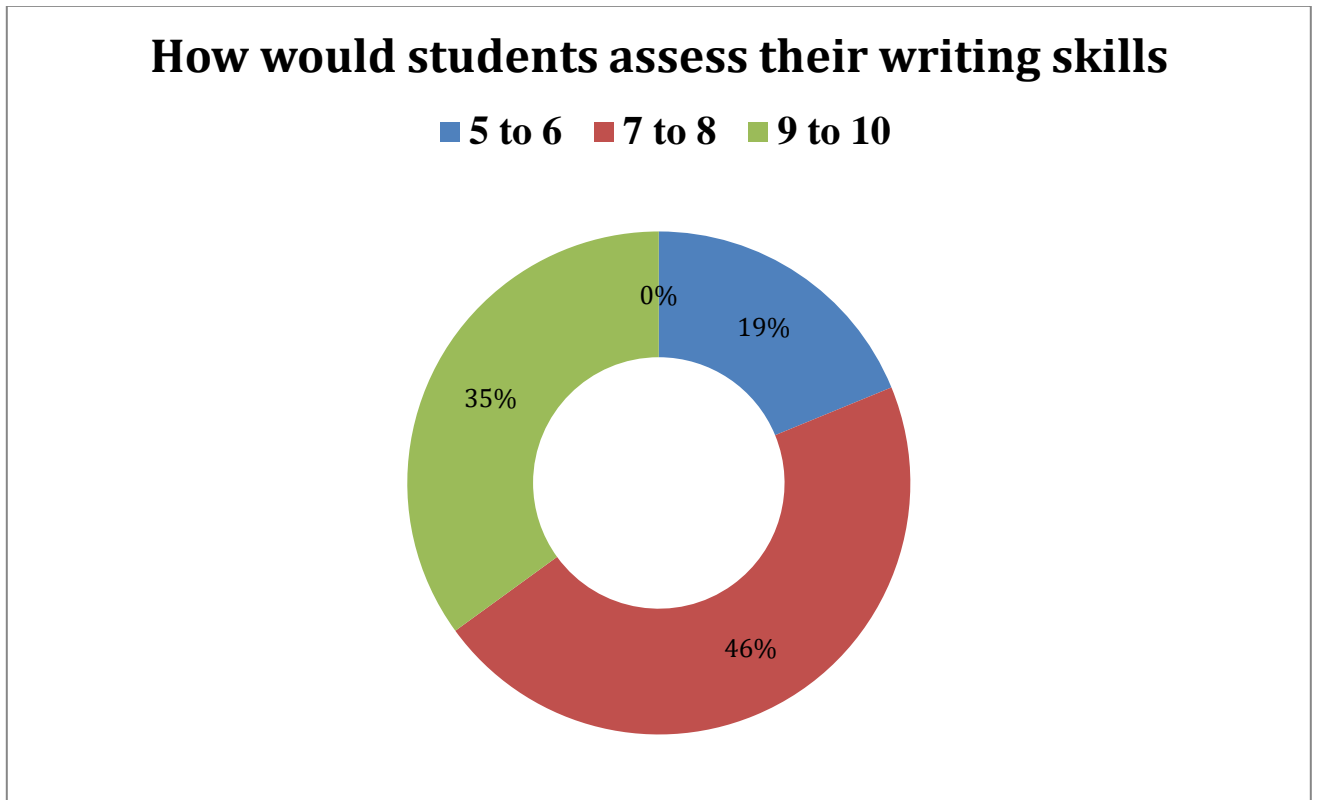
3.6.6 Question 5:

It is obvious in the era of technology and advancement that students rely mostly on online education, therefore in this question we gave them 4 options to choose their preferable resource to gain knowledge and language, from which they are: Applications, online courses, Articles and books. According to the results given by the participants we can distinct that most of the answers were students chose Applications and online courses simply for the reason that online courses and Applications has evolved over years in the field of education and since most people are using their phones frequently, they take advantage of that piece of technology in developing their skills. However, some participants prefer reading and using books to gain or sharpen their skills.

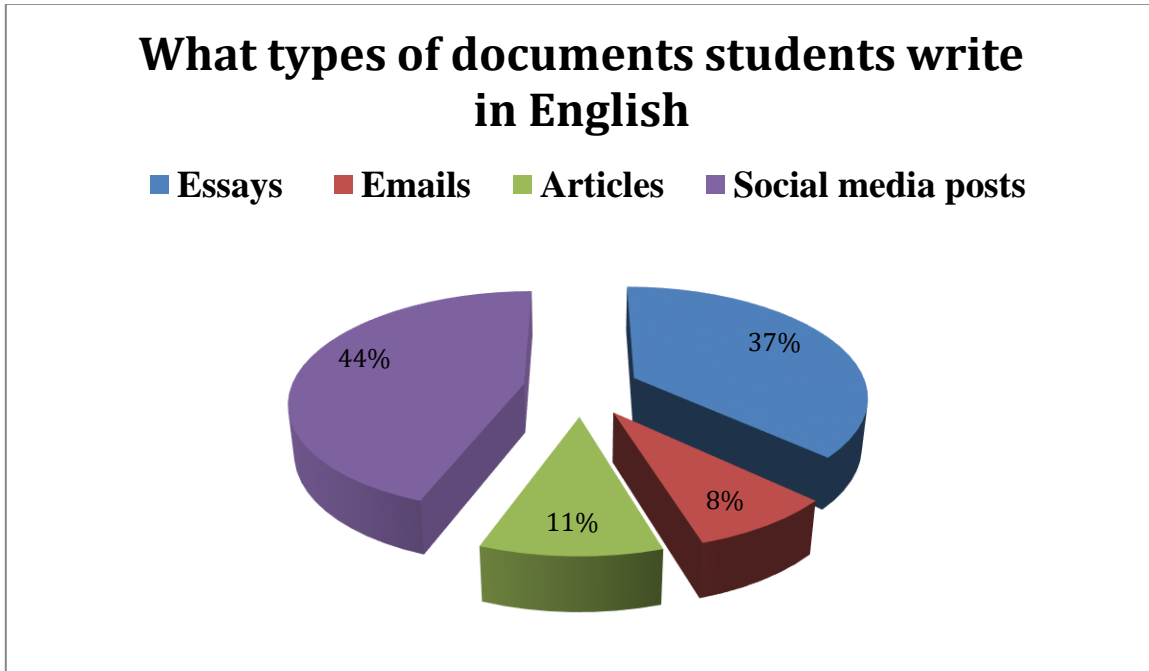
3.6.7 Question 6:



It is worth noting that writing emerged as a highly effective means to put English skills to the test, despite not being the most preferred tool for language learning among the participants. This finding aligns with the understanding that writing serves as a powerful tool for consolidating language knowledge, refining grammatical accuracy, and developing critical thinking skills. The participants' engagement with English in both academic and personal contexts further support the idea that writing plays a crucial role in their language development. As third-year LMD students and Master's students, they are actively involved in academic pursuits that require proficient English language skills. Academic tasks such as essays, research papers, and presentations necessitate clear and coherent written communication, encouraging the participants to sharpen their writing abilities.

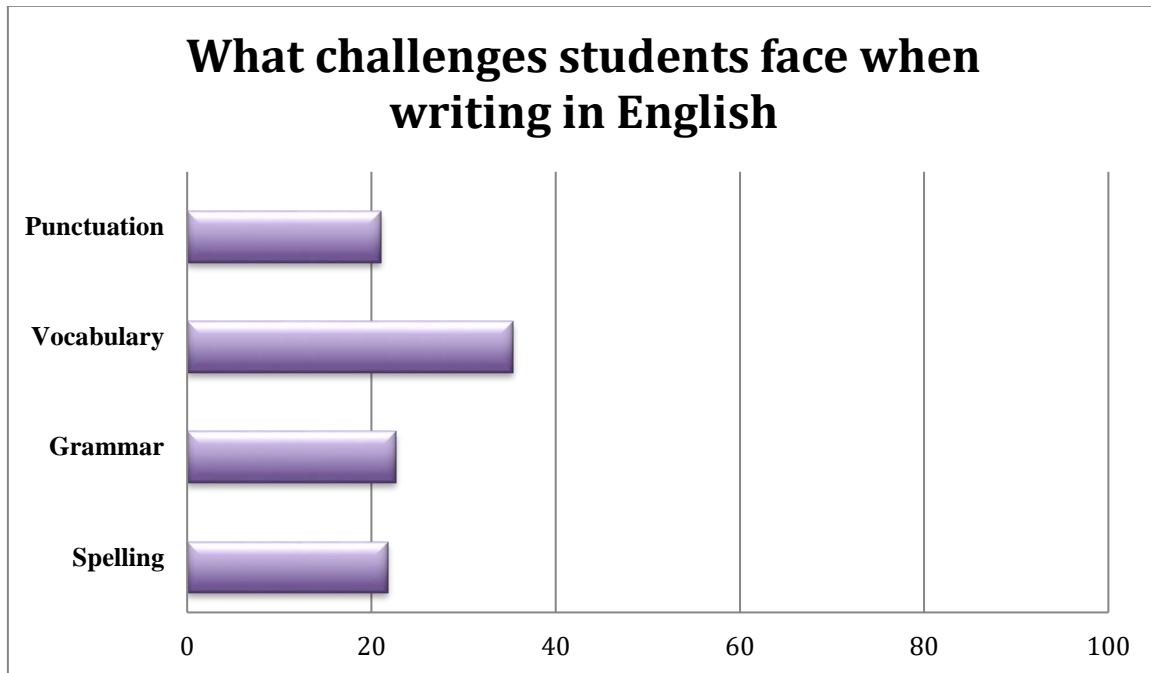
3.6.8 Question 7:

In this question we gave the samples the opportunity to assess themselves considering their writing skills. We divided the scale into three parts going from the lowest rating given which was 5 to the highest which was 10. The lowest percentage was the first part going from 5 to 6 chosen mostly by third year LMD students while the highest percentage was the second part going from 7 to 8. The last part included master one students in which they rate themselves on the scale of 9 to 10 which was expected.

3.6.9 Question 8:

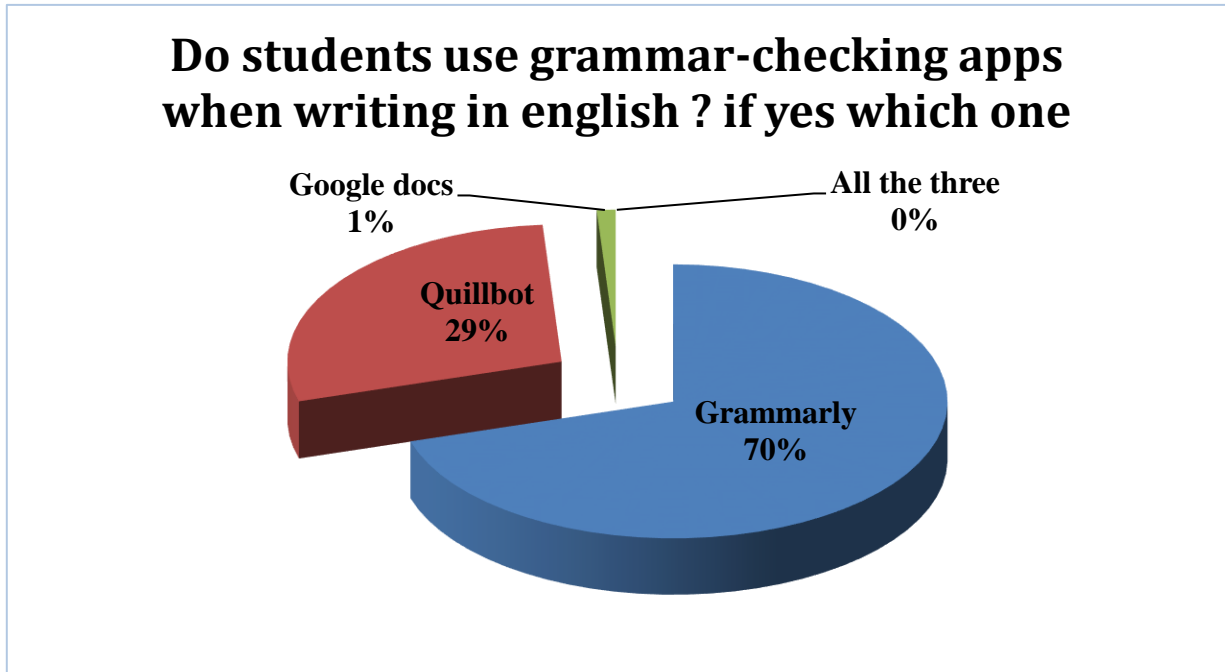
students usually using English not only for their academic purposes, however they utilize the language in more divers' fields. As given to us in the questionnaire we observe that social media posts dominate the answers received, also right after social media we noticed that essays are also at a highest percentage simply for the reasons that the two levels are under extensive writing assignment and presentation

3.6.10 Question 9



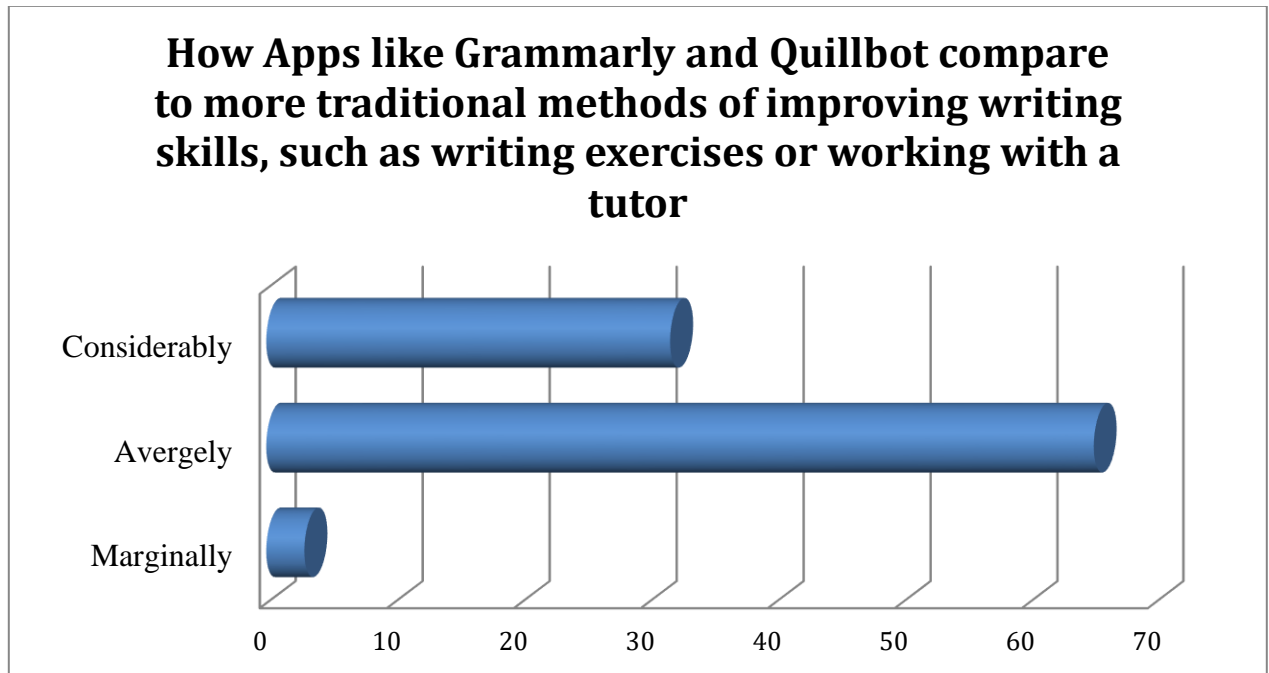
In this question we came to what actually challenges students in writing, as seen in the chart we can clearly distinguish the difficulties students are experiencing while writing in English. In the questionnaire we had four options in which students have the choice to choose more than one option, the given possibilities were punctuation, vocabulary, Grammar and spelling. According to the figure most students find vocabulary as their most challenge in English whereas punctuation and grammar comes second as a result of relying only on word processors and not counting on their own writing skills.

3.6.11 Question 10:



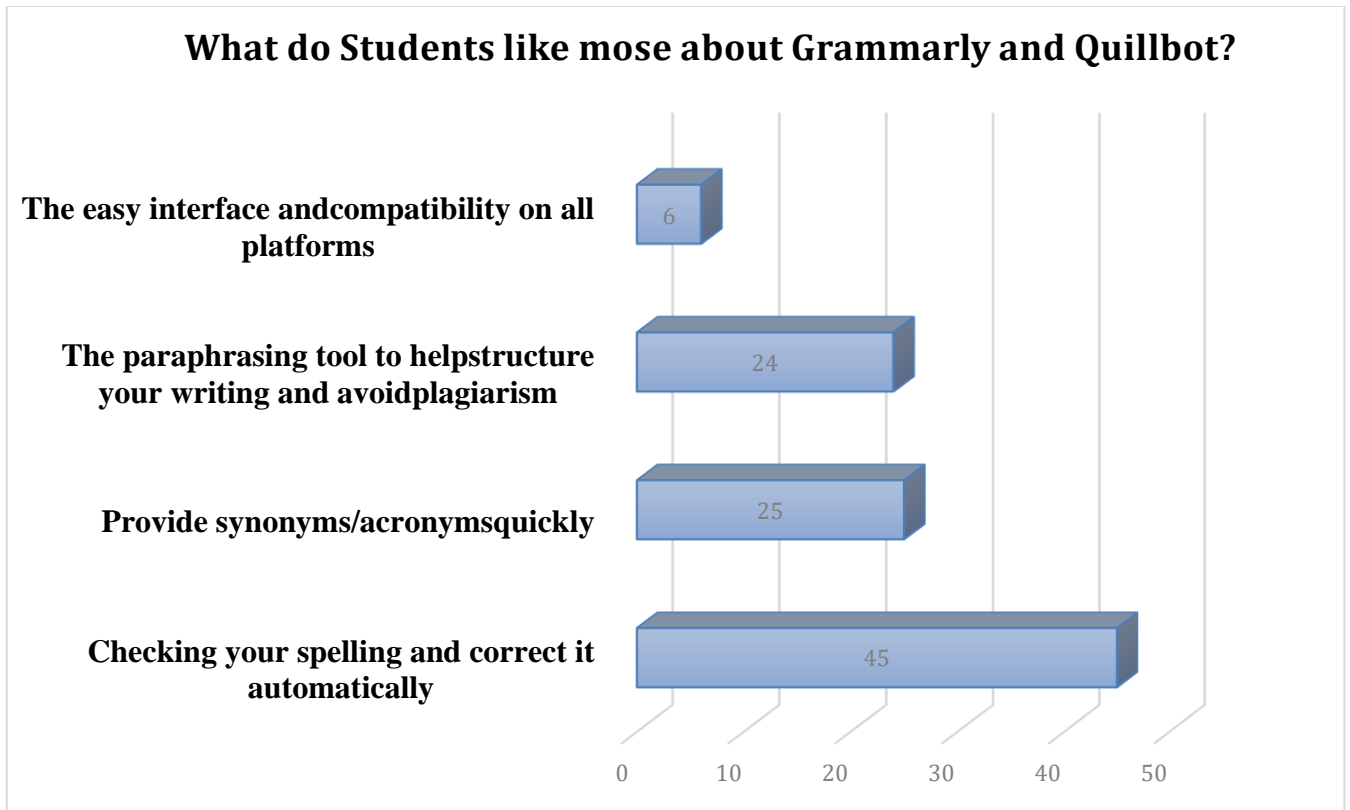
Word processors have developed in the last few years increasingly adopting the field of artificial intelligence, recently we observed certain applications claiming that they are better writers than humans or teachers could ever be. In this study we chose three of the most popular word processors applications that use AI which are Grammarly and Quillbot and google docs. The aim of this question is to show if students actually use these applications or not and if so which one they prefer using. 70% of the samples chose Grammarly over quillbot while the other 30 prefer using quillbot, google docs is a word processor that utilize AI but the purpose of using it is quite different from the others.

3.6.12 Question 11:



Grammarly and Quillbot are seen as replacements of actual exercises and tutor (teacher), in this question we wanted to collect student's perception on this claiming. Third LMD and Master one students actually agree the previous claim as shown in the figure, we gave the participants the options displayed in the figure in which we see most of the answers given are positive towards these two WPAs.

3.6.13 Question 12:



Furthermore, as part of our questionnaire, we asked students about the most commonly used features in Grammarly and Quillbot. These features encompassed various aspects that are highly valued in writing assistance tools. Firstly, the easy interface and compatibility on all platforms were mentioned as essential attributes, allowing students to access and utilize these tools seamlessly regardless of their preferred devices. Secondly, the paraphrasing tool, which aids in structuring writing and avoiding plagiarism, was highlighted as a significant feature. The provision of synonyms and acronyms quickly emerged as the third most appreciated feature among the students, constituting 25% of the responses. This aspect of the tools is particularly beneficial for learners who may have limited vocabulary repertoires. Interestingly, the most favored feature among the participants, selected by 45% of the respondents, was the real-time checking of spelling and automatic correction. This capability is highly valued as it ensures the accuracy and professionalism of written work. The ability to detect and rectify spelling errors instantly provides a sense of confidence and reassurance to the students, enabling them to focus more on the content and structure of their writing. The questionnaire revealed that the real-time

checking of spelling and automatic correction was the most highly regarded feature among the participants, followed by the provision of synonyms and acronyms quickly. These findings emphasize the importance of accuracy, convenience, and language enrichment in the use of writing assistance tools.

3.6.14 Question 13: According to Students, What Features would They suggest to better improve these two-word processing applications (Grammarly, Quillbot)

The purpose of including a question about student suggestions for improvements in Grammarly and Quillbot was to gather valuable insights on how these writing assistance tools can better meet the specific needs and preferences of the student users. By understanding the features or functionalities that students feel are lacking or could be enhanced, developers can refine these applications to provide an even more tailored and effective user experience. The responses received from the students offered valuable suggestions for improvement. One recurring theme in their suggestions was the desire for more contextual and nuanced feedback. Students expressed the need for the tools to not only identify grammatical errors but also provide explanations and suggestions to help them understand and learn from their mistakes. They emphasized the importance of receiving feedback that goes beyond surface-level corrections, enabling them to enhance their writing skills and deepen their understanding of grammar and language usage. Another commonly mentioned suggestion was the inclusion of additional writing genres and styles in the tools' repertoire. Students highlighted the need for specific features or functionalities that cater to different types of writing, such as academic essays, creative writing, professional emails, and more. They expressed a desire for the tools to offer tailored suggestions and recommendations based on the specific requirements and conventions of different writing contexts. While the two most highlighted suggestions from the students have been mentioned, it is important to acknowledge that additional recommendations were provided. However, it is worth noting that these suggestions were deemed unreliable or less emphasized compared to the two prominent suggestions mentioned earlier.

The students' perception of certain recommendations as unreliable may stem from a variety of reasons. It is possible that these suggestions did not align with the students' specific needs, were considered less impactful in improving their writing skills, or lacked practicality in the context

of the Grammarly and Quillbot applications. The whole purpose of gathering suggestions from students regarding Grammarly and Quillbot was to identify areas where these writing assistance tools could be enhanced to better serve their needs. The feedback received highlighted the importance of comprehensive grammar suggestions, contextual vocabulary assistance, plagiarism detection, user-friendly interfaces, and customization options. By incorporating these suggestions, developers can work towards creating writing tools that address students' specific requirements and contribute to their overall writing success.

3.6.15 Question 14: Grammarly and Quillbot are both word processing applications that use Artificial intelligence. According to you as an EFL students, how do you see this shift and development that we're seeing in WPA (word processing applications) applications that uses AI. is it positive or negative?

The majority of students in our study expressed positive attitudes towards the development of word processing applications powered by artificial intelligence (AI). These findings suggest that students recognize the potential benefits and value that AI technology can bring to the writing process. It is worth noting that the positive responses towards AI-powered word processing applications may also indicate a growing acceptance and familiarity with AI technology among students. As AI becomes more integrated into various aspects of our lives, including education, students may view AI as a reliable and helpful tool in their academic pursuits. However, it is important to acknowledge that not all students may share the same positive sentiment towards AI-powered word processing applications. Some students may have concerns about over-reliance on technology, potential limitations or biases in AI algorithms, or the impact on human creativity and critical thinking. These perspectives should be considered in further research to gain a more comprehensive understanding of the students' attitudes towards AI in writing

3.7 Discussion of The Questionnaire Results

According to the analysis of the students' questionnaire answers, this research proves that third-year LMD and Master's degree students at Tiaret University are being realistic in their honest responses. The majority of the participants, accounting for 70%, state that they face challenges in writing, and they are honest in acknowledging their use of word processors to overcome these deficiencies. Therefore, third-year LMD and Master's degree students find that applications and programs of this nature save time and enhance their writing skills. The statistical data clearly demonstrates the students' inclination towards utilizing word processors. Over 80% of the surveyed students agree on the efficacy of applications like Grammarly and Quillbot in writing their assignments and essays. They firmly believe that these programs contribute to more accurate and professional writing. This high percentage of agreement highlights the significance of such tools in supporting students' writing endeavours. Among the applications analysed, Grammarly emerged as the more preferred and effective option. The majority of the samples chose Grammarly over Quillbot, with 67% of the responses indicating a preference for Grammarly, while only 33% favoured Quillbot. These findings align with our initial hypothesis, which posited that Grammarly would be more beneficial to learners compared to Quillbot. The reason behind this preference lies in Grammarly's ability to fulfil students' needs by providing better word formations and real-time corrections for text documents. On the other hand, Quillbot excels in suggesting improved sentences, phrases, and words, but it does not offer real-time corrections like Grammarly. The students' preference for Grammarly can be attributed to its comprehensive features, including its advanced grammar and spell-check capabilities, vocabulary enhancement suggestions, and real-time error detection. These aspects contribute to enhancing the overall writing quality and professionalism of the students' work. By providing immediate feedback and suggestions, Grammarly enables students to correct their mistakes promptly, thereby improving their writing skills. Moreover, Grammarly offers additional functionalities, such as style and tone adjustments, plagiarism detection, and readability analysis. These features aid students in refining their writing style, ensuring originality, and optimizing their texts for readability. The combination of these factors ultimately leads to more polished and proficient written assignments. However, it is worth noting that Quillbot still holds value for certain students and specific writing tasks. Its ability to generate alternative sentence

structures and word choices can be particularly useful for those seeking to diversify their writing or overcome writer's block. Quillbot's suggestions provide students with a creative boost, allowing them to explore different ways of expressing their ideas. In conclusion, the results of the questionnaire clearly demonstrate that third-year LMD and Master's degree students at Tiaret University find word processors, specifically Grammarly and Quillbot, to be invaluable tools in their writing endeavours. The majority of participants acknowledge the challenges they face in writing and embrace the assistance provided by these applications. While Grammarly takes the lead due to its real-time correction and comprehensive writing support, Quillbot offers unique benefits for specific writing needs. By leveraging the capabilities of these applications, students can enhance the accuracy, professionalism, and overall quality of their written assignments and essays, ultimately becoming more proficient writers.

3.8 Synthesis of the findings

Students' responses in the questionnaire shed light on the positive impact of word processing applications that utilize artificial intelligence (AI) in improving their writing skills. The overwhelming majority of students expressed their frequent use of these applications, indicating a growing reliance on AI-powered tools to enhance their writing abilities. The popularity and effectiveness of applications such as Grammarly and Quillbot are evident in the students' perception of them as not only learning tools but also convenient resources. One notable aspect highlighted by the questionnaire results is the accessibility of these applications across various platforms. Students appreciate the fact that Grammarly and Quillbot are available not only on traditional platforms like personal computers but also on smartphones and other devices that they have access to on a daily basis. This accessibility ensures that students can utilize these tools wherever and whenever they need assistance with their writing, making them an integral part of their writing process. The convenience of having word processing applications with AI capabilities readily available on multiple platforms empowers students to improve their writing skills consistently. Whether they are writing an essay, working on an assignment, or even drafting an email, students can seamlessly integrate these applications into their daily writing routines. The ease of use and accessibility of these tools contribute to their widespread adoption among students, as they can receive real-time suggestions, corrections, and enhancements to their writing on the go. Furthermore, the AI-powered nature of these

applications allows students to benefit from advanced language processing algorithms and machine learning techniques. Grammarly, for example, utilizes sophisticated grammar and spell-check features, ensuring that students' writing is free from common errors and mistakes. It also provides vocabulary enhancement suggestions, helping students to diversify their word choices and improve the overall clarity and effectiveness of their writing. Quillbot, on the other hand, offers students the ability to generate alternative sentence structures and word choices, allowing them to explore different ways of expressing their ideas. This feature not only helps students overcome writer's block but also encourages creativity and fosters a deeper understanding of sentence construction and language usage. The positive perception of these AI-powered applications as valuable resources for students reflects the benefits, they bring to the writing process. By leveraging the capabilities of AI, students can receive instant feedback, learn from their mistakes, and make necessary improvements to their writing in a timely manner. This continuous learning and improvement cycle contributes to the overall growth and development of their writing skills.

3.9 Limitation

Despite the careful attention paid to each phase of the research design, it is important to acknowledge the methodological limitations that exist in this study. One significant limitation arose during the data collection phase, specifically when administering the online questionnaire. It was evident that not all students and teachers were familiar with the two applications, Grammarly and Quillbot. This unexpected finding prompted us to modify our approach and focus solely on participants who were already acquainted with these applications, specifically those in the L3 and Master's degree levels. As a result, we had to cancel the planned interviews with teachers and allocate our efforts towards identifying suitable samples with prior knowledge of the applications. While the online questionnaire was intended to streamline the data collection process and make it more accessible to participants, we encountered some challenges. Some respondents found it difficult to navigate and interact with the website utilized for the questionnaire, which was based on Google Forms.

This limitation may have influenced the response rate and potentially impacted the representativeness of the collected data. Another limitation we encountered was the scarcity of resources and references available in our university library. Since this particular research topic had not been extensively discussed before, it was challenging to find relevant sources within our institution's library. Consequently, we had to heavily rely on online articles and dissertations from foreign universities to gather the necessary information and background for our study. While online sources can provide valuable insights, the reliance on such materials may introduce potential biases and limitations due to variations in research methodologies and contexts. It is important to acknowledge these limitations as they may have influenced the outcomes and generalizability of our research findings. Future studies should consider addressing these limitations by ensuring a more diverse and representative sample of participants, enhancing the usability of data collection platforms, and striving to access a wider range of scholarly resources. By addressing these limitations, researchers can strengthen the validity and reliability of their findings and contribute to a more comprehensive understanding of the topic at hand.

3.10 Recommendation and suggestions

The research results have highlighted the significance of integrating word processing applications that utilize AI, such as Grammarly and Quillbot, into educational settings to enhance students' writing skills. These findings underscore the importance of further research in this area, leading to several recommendations for future studies:

1. More studies are needed to determine the true value and effectiveness of word processors that utilize AI in the development and improvement of writing skills. These studies can delve deeper into the specific features and functionalities of these applications and their impact on enhancing writing abilities. By conducting comprehensive research, educators and researchers can gain a better understanding of the potential benefits and limitations of these tools.
2. Future research should focus on the purposeful integration of Grammarly and Quillbot as part of the learning process. Investigating how these applications can be effectively incorporated into language learning curriculum and instruction would allow learners to master one of the main four language skills, namely writing. Such studies can explore the

best practices, strategies, and pedagogical approaches for integrating AI-powered word processors into classroom settings, thereby optimizing their impact on students' writing proficiency.

3. To expand the scope of research in this domain, it is recommended to conduct studies using other AI-powered language processing tools. ChatGPT and Ginger are examples of such tools that offer unique features and capabilities. Comparing the effectiveness of different AI-based word processing applications would provide valuable insights into their relative strengths and weaknesses and offer educators a wider range of options to choose from based on specific educational objectives.
4. In addition to online questionnaires, future research can incorporate other data collection methods such as interviews and observations. Interviews with students and teachers can provide in-depth insights into their experiences and perceptions of using AI-powered word processors. Observations of students' writing processes and outcomes while utilizing these applications can offer a more comprehensive understanding of the impact on writing improvement. Incorporating multiple data collection tools would strengthen the validity and reliability of the research findings.
5. When collecting data, it is important to note the characteristics of the samples and consider how the research findings can be beneficial in practical terms. Understanding the demographics, educational backgrounds, and specific needs of the participants can help researchers tailor their findings and recommendations to suit the intended audience. This approach ensures that the research outcomes have real-world applicability and can be effectively implemented in educational contexts.

By following these recommendations, future research endeavours can contribute to the growing body of knowledge surrounding the integration of AI-powered word processors in education and shed light on the best practices for utilizing these tools to enhance students' writing skills. Ultimately, this research will benefit educators, students, and researchers alike in their pursuit of effective and innovative approaches to language learning and writing instruction.

3.11 Conclusion:

In conclusion, the use of current word processing applications that employ artificial intelligence, such as Grammarly and Quillbot, can significantly benefit students in enhancing their writing skills. The results obtained from the questionnaire administered to third-year LMD and Master one students at the University of Tiaret strongly support the hypothesis that applications like Grammarly and Quillbot can greatly assist students in enhancing their writing skills. By providing real-time feedback, catching subtle errors, suggesting writing styles, and offering detailed explanations, these AI-powered tools empower students to improve their grammar, vocabulary, sentence structure, and overall writing proficiency. As technology continues to advance, it is clear that the integration of artificial intelligence in word processing applications will continue to play a vital role in supporting students' writing development.

3.1 General conclusion

The advent of word processor applications has indeed revolutionized the way we approach document creation, editing, and management. These programs have become indispensable tools for businesses, students, and individuals alike, offering a wide range of features and functions that simplify the process of creating, editing, formatting, and sharing documents. In this era of technological advancement, the integration of artificial intelligence (AI) into word processor applications has further enhanced their capabilities using machine learning and deep learning to achieve it. Two prominent examples of AI-powered word processors are Grammarly and Quillbot, which have garnered widespread attention and acclaim. In this research, we aim to provide an in-depth analysis of these applications, exploring their features, benefits, and limitations. Grammarly, a popular AI-driven writing assistant, offers a comprehensive suite of writing tools. It employs advanced algorithms to analyse text for grammar, spelling, punctuation, and clarity issues. Grammarly provides real-time suggestions and corrections, highlighting potential errors and offering alternatives to enhance the quality of writing. Its feature set extends beyond basic grammar checking, including vocabulary enhancement suggestions, tone adjustments, and even plagiarism detection. Grammarly is widely used by writers, professionals, and students to ensure their writing is clear, concise, and error-free. Quillbot, another AI-based word processor, focuses on generating human-like paraphrases and improving sentence structure. It utilizes natural language processing techniques to rewrite text, offering alternative word choices and sentence formations. Quillbot's paraphrasing capabilities are particularly useful for writers looking to improve the flow of their sentences or create unique variations of existing content. It assists users in avoiding repetitive language and enhances the overall readability of their writing. In general terms, the study included three main research questions that provided an important analytical framework for studying the data collected. This has shed more light on the analogy of the two word processors using a quantitative research approach in a well-structured questionnaire in which we gathered data from third year LMD and Master one students at the university of Tiaret (Algeria). The data collected clearly shows student's preference towards using word processors. As seen in the discussion of the questionnaire over 80% of the surveyed student agree on the efficiency of both Grammarly and

QuillBot. However, as we hypothesised Grammarly is what most students leaned on simply for the reason that the application has conquered the whole market of Ai powered WPA through their smart advertisement and the variety of the features it provides, plus giving you access to most of it features for free unlike Quillbot.

Finally, word processor applications utilizing AI, such as Grammarly and Quillbot, have transformed the way we approach writing and document creation. These tools offer a wide range of features and benefits, from grammar and spelling checks to sentence rephrasing and vocabulary enhancement. While they greatly assist in refining writing skills and improving efficiency, it is essential to recognize their limitations and the need for human judgment in producing truly exceptional content.

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APPENDICES

Appendix 1

Students' Questionnaire

Questionnaire

The purpose of this questionnaire is Comparing Two Word Processing Applications that use Artificial Intelligence (Grammarly and Quillbot)

* Indique une question obligatoire

Section sans titre

1. Gender *

Une seule réponse possible.

- Male
- Female

2. Age *

3. What is your academic level ? *

Une seule réponse possible.

- Master One Student
- L3 Student

4. What level of English proficiency do you consider yourself to have ? *

Une seule réponse possible.

- Beginner
- Intermediate
- Post intermediate
- Advanced

5. What learning methods have been most effective for you in improving your English skills? *

Plusieurs réponses possibles.

- Reading
- Writing
- Speaking
- Formal instruction (get educated only by teachers)

6. What resources have you been using to study English? *

Plusieurs réponses possibles.

- Books
- Articles
- Online courses
- Applications

7. **How often do you write in English for personal or academic/professional purposes?** *

Une seule réponse possible.

- Never
- Rarely
- Sometimes
- Most of The time
- Always

8. **What types of documents do you write in English ? ***

Plusieurs réponses possibles.

- Essays
- Emails
- Articles
- Social media posts

9. **How would you assess your writing skills in English from 1/10? ***

10. **What challenges do you face when writing in English? ***

Plusieurs réponses possibles.

- Spelling
- Grammar
- Vocabulary
- Punctuation

11. **Do you use any grammar-checking apps or tools when writing in English? If so, which ones?** *

Une seule réponse possible.

- Grammarly
- Quillbot
- Google Docs
- Autre : _____

12. **How do you think grammar-checking apps like Grammarly and Quillbot have helped you improve your writing skills? (if you use them)** *

Plusieurs réponses possibles.

- Marginally
- Average
- Considerably

13. **What do you like most about grammar-checking apps like Grammarly and Quillbot?** *

Plusieurs réponses possibles.

- Checking your spelling and correct it automatically
- Provide synonyms/acronyms quickly
- The paraphrasing tool to help structure your writing and avoid plagiarism
- The easy interface and compatibility on all platforms

14. **What do you like least about grammar-checking apps like Grammarly and Quillbot?**

15. **Have you noticed any differences in your writing since using grammar-checking apps like Grammarly and Quillbot? If yes , would you please specify them ?** *

Plusieurs réponses possibles.

- Yes
 No
 Autre : _____

16. **How do you think grammar-checking apps like Grammarly and Quillbot compare to more traditional methods of improving writing skills, such as writing exercises or working with a tutor?** *

Une seule réponse possible.

- Marginally
 Average
 Considerably

17. **According to you, which is the most effective ? Grammarly of Quillbot? Why ? ***

Plusieurs réponses possibles.

- Grammarly
 Quillbot
 Autre : _____

18. **Grammarly and Quillbot are both word processing applications that use Artificial intelligence. According to you as an EFL students, How do you see this shift and development that we're seeing in WPA(word processing applications) applications that uses AI . is it positive or negative ? ***

19. **Which one do you prefer using? Why? ***

Plusieurs réponses possibles.

- Grammrarly
 Quillbot
 Autre : _____

20. **According to you What Features would you suggest to better improve These two word processing applications (Grammarly , Quillbot)** *

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المخلص

تهدف الأطروحة التي بين أيدينا إلى مقارنة تطبيقات معالجة النصوص الحالية التي تستخدم الذكاء الاصطناعي، مركزين في ذلك بوجه الخصوص على "فرامارلي" و "كيلبوت". وتحلل أيضا كيفية تطور هذه البرامج عبر الوقت. كما تم توزيع استبيان على 80 طالبا من السنة الثالثة ليسانس وطلبة ماستر 1 على مستوى جامعة ابن خلدون - تيارت- الجزائر. وتشير نتائج هذا الاستبيان إلى أن الطلاب يقبلون بكثرة على استخدام برامج معالجة النصوص. كما تبين أيضا تأثيرات هذه البرامج الإيجابية الكبيرة على المهارات الكتابية للطلاب. من الملاحظ أن استخدام تطبيقات معالجة النصوص يساعد الطلاب على تحسين كتاباتهم وذلك عبر منعهم من القيام بأخطاء نحوية، ووضع علامات الترقيم المناسبة، وتفادي الأخطاء إملائية. على العموم، يساهم هذا البحث في المراجعة الأدبية على تأثير تطبيقات معالجة النصوص التي تستخدم الذكاء الاصطناعي عبر تسليط الضوء على التأثيرات الإيجابية لهذه الأدوات على المهارات الكتابية للطلاب، كما تتيح أيضا معلومات حول الفوائد المحتملة لاستخدام تقنيات الذكاء الاصطناعي في البيئات التعليمية.

الكلمات الدالة: فرامارلي, كيلبوت, تطبيقات معالجة النصوص, تستخدم الذكاء الاصطناعي

Résumé :

Ce mémoire de fin d'étude vise à comparer les performances des applications de traitement de texte qui utilisent l'intelligence artificielle, notamment **Grammarly** et **Quillbot** étant donné que leur utilisation est largement répandue. De plus, il comporte une analyse de l'évolution de ces programmes au fil du temps. Pour atteindre cet objectif, une approche quantitative a été adoptée en utilisant un questionnaire organisé en ligne. Le questionnaire a été distribué à 80 étudiants, comprenant des étudiants de 3e année LMD et de Master 1 au département de langue Anglaise de l'université Ibn Khaldoun à Tiaret, en Algérie. Les résultats de cette recherche indiquent que les étudiants adoptent une attitude positive envers l'utilisation de ces applications de traitement de texte. Par ailleurs, les résultats sont concluants et montrent les effets positifs significatifs de ces programmes sur les compétences rédactionnelles des étudiants. Il a été observé que l'utilisation des applications de traitement de texte aide les étudiants à améliorer leurs écrits en les empêchant de faire des fautes de grammaire, de ponctuation et d'orthographe. En outre, cette recherche vise à enrichir les contenus littéraires et académiques sur l'impact des applications de traitement de texte qui utilisent l'intelligence

artificielle, en soulignant les effets positifs de ces outils sur les compétences rédactionnelles des étudiants. Cela offre des perspectives sur les avantages potentiels de l'incorporation de la technologie pilotée par l'intelligence artificielle dans les environnements éducatifs.

Mots clés : Applications de traitement de texte, intelligence artificielle, Grammarly, Quillbot