

CHAPTER IV

FINDINGS AND DISCUSSION

A. Findings

This study aims to explore artificial intelligence-powered websites specifically designed for grammar correction, as outlined in the research objectives. The research findings are presented in this chapter, divided into two sections: Findings and Discussion. Digital resources encompass those initially created in digital form as well as those converted from analog to digital format.

In the Findings section, the researcher examines the features of AI tools that facilitate grammar correction:

1. Grammarly

Grammarly is an effective tool that can be used to find and fix grammar mistakes in a variety of areas that are categorized by the Surface Strategy Taxonomy. Grammarly is excellent at identifying omissions, such as missing articles, prepositions, and auxiliary verbs, and it offers precise recommendations for filling up these gaps. It occasionally fails to pick up on more nuanced errors, though, particularly in complicated phrase constructions. Grammarly is good at identifying extraneous words and recommending their deletion to improve sentence clarity when it comes to additions, while it occasionally overcorrects stylistic decisions. Grammarly excels at correcting misformations, like verb tense mistakes or improper word forms, usually providing precise and beneficial changes. It might, however, have trouble with context-dependent

grammatical errors in complex sentences. Grammarly effectively finds and fixes common misordering errors, enhancing phrase readability, while it might not always handle intricate or unusual structures flawlessly.

2. ChatGPT

Grammar mistakes can also be addressed by ChatGPT, a conversational AI, in accordance with the Surface Strategy Taxonomy; however, the clarity and context of the input will determine how successful ChatGPT is in correcting errors. When given precise examples, ChatGPT may identify omissions and provide the necessary changes; nevertheless, further guidance may be required for precise fixes in complex sentences. Additions: If provided enough context, ChatGPT can recognize extraneous items and recommend their removal; nevertheless, its consistency could suffer in the absence of explicit cues. Without particular input, ChatGPT may struggle to handle less frequent or subtle errors, but it handles typical errors well, providing thorough explanations and remedies. Word order errors in simple sentences can be efficiently fixed using ChatGPT, but in more intricate or confusing constructions, it may not be able to handle the extra context.

3. QuillBot

In line with the Surface Strategy Taxonomy, conversational AI ChatGPT can also handle grammatical errors. The efficacy of ChatGPT's

error correction is contingent upon the lucidity and context of the input. When provided specific examples, ChatGPT can spot errors and make the proper corrections; however, more direction might be needed for accurate fixes in complex sentences. Further information: ChatGPT may identify unnecessary objects and suggest their removal if given sufficient context, but in the lack of clear cues, its consistency may suffer. Less frequent or obscure mistakes may be difficult for ChatGPT to handle without specific input, but it handles common issues well, offering comprehensive explanations and solutions. While ChatGPT can effectively correct word order problems in basic statements, it might not be able to handle the additional context in more complex or difficult compositions.

4. **ProWritingAid**

ProWritingAid is a thorough tool for testing grammar that demonstrates strong performance in all areas of the Surface Strategy Taxonomy. Regarding omissions, it accurately detects and proposes repairs for the absence of articles, prepositions, and other components. However, it may occasionally overlook omissions in more intricate structures. ProWritingAid effectively identifies extraneous parts and provides suggestions for their removal to improve clarity. However, it may occasionally make excessive corrections to style choices. ProWritingAid excels at detecting and rectifying faults, such as verb tense inconsistencies and erroneous word usage. However, it may

encounter difficulties when dealing with intricate or uncommon problems in complicated phrases. ProWritingAid is proficient at rectifying frequent faults and enhancing the coherence of sentences when it comes to misordering. However, it may not consistently rearrange intricate or unconventional structures accurately.

Grammarly, ChatGPT, QuillBot, and ProWritingAid each excel in specific areas of grammatical correction based on the Surface Strategy Taxonomy. Grammarly is particularly effective at identifying and correcting omissions, such as missing articles, prepositions, and auxiliary verbs, providing clear suggestions to address these gaps. ChatGPT stands out in detecting unnecessary additions, adeptly identifying and suggesting the removal of redundant elements like extra articles or prepositions when given clear context. QuillBot excels in correcting misformations, such as verb tense errors and incorrect word forms, offering detailed explanations and accurate corrections. ProWritingAid shines in addressing misordering errors, effectively correcting word order issues and improving sentence readability.

After comprehensively analysed each website, the researcher classified which AI is the best for four of grammatical errors according to Surface Strategy Taxonomy, researcher divided which best for Omission Error, Addition Error, Misformation, And Misordering:

1. Omission Error: Grammarly

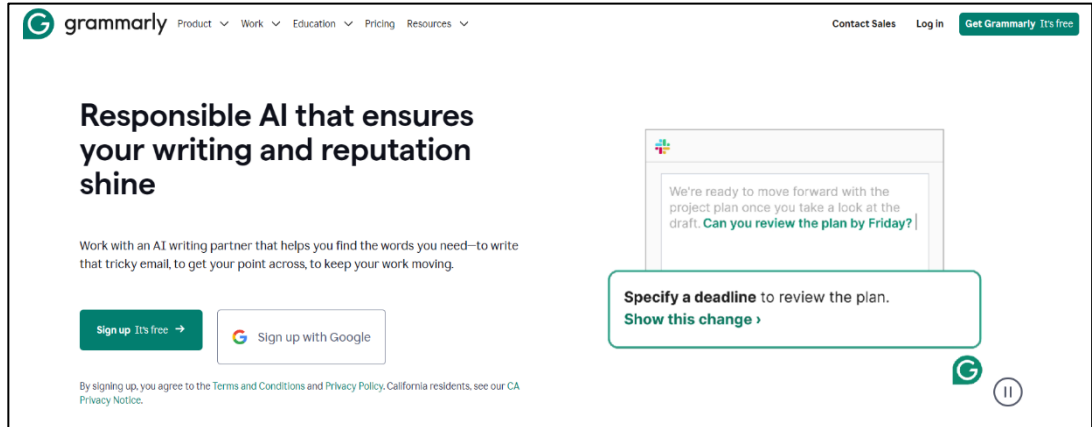


Figure 4.1 Home Page of Grammarly on Computer

Omission errors occur, when necessary, words are left out of a sentence. Grammarly is highly proficient at detecting and rectifying omission problems owing to its extensive real-time grammatical checks and sophisticated algorithms. Grammarly's comprehensive explanations and context-sensitive suggestions guarantee the precise identification and proper insertion of missing words in the text.

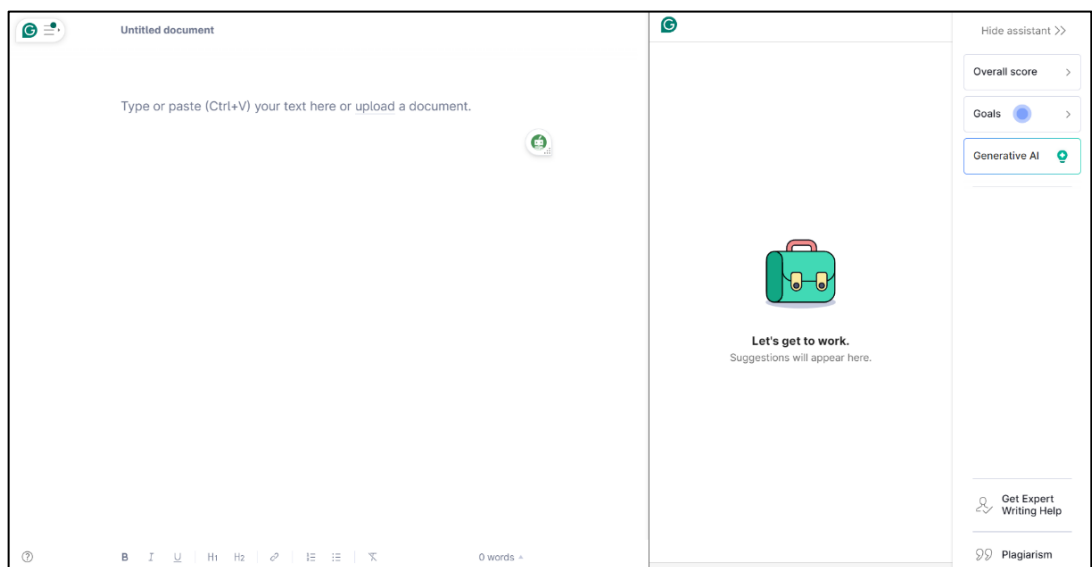


Figure 4.2 Main Layout of Grammarly on Computer

Grammarly is a highly regarded AI-driven writing tool that is known for its thorough approach to correcting grammar. By employing sophisticated natural language processing (NLP) and machine learning techniques, Grammarly analyzes text to identify a diverse range of grammatical errors.

Set goals

Get tailored writing suggestions based on your goals and audience.

Audience General **Knowledgeable** Expert

Knowledgeable (default): Requires focus to read and understand.

Formality Informal **Neutral** Formal

Neutral (default): Restricts slang but allows standard casual expressions.

Domain Academic Business **General** Email Casual Creative

[Try for Free](#) Get customized suggestions for business writing, academic assignments, and more.

Intent Inform Describe Convince Tell A Story

Experimental. What are you trying to do? This helps us build new suggestions and won't affect your feedback today.

Show Set Goals when I start a new document Reset to defaults **Done**

Figure 4.3 Features from Grammarly when Starting a New Task

Grammar Correction Features of Grammarly:

- 1) Grammarly offers real-time comments on grammar faults, punctuation blunders, and spelling issues.
- 2) Elaborate Explanations: Every correction is accompanied by a thorough explanation, aiding users in acquiring and comprehending grammar rules.

- 3) Grammarly's advanced grammar checks go beyond simple errors and detect more intricate grammatical difficulties, like subject-verb agreement, passive voice, and incorrect tense usage.
- 4) Grammarly performs consistency checks to ensure that verb tenses, pronoun usage, and formatting remain consistent throughout the text.

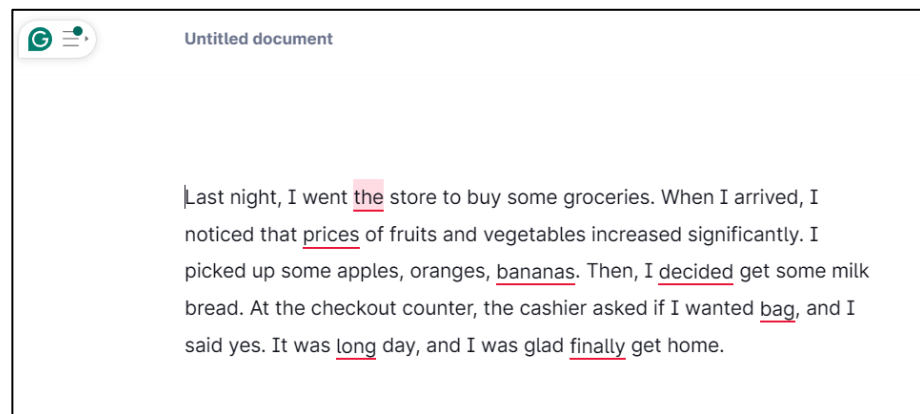


Figure 4.4 Example Paragraph Containing Addition Errors

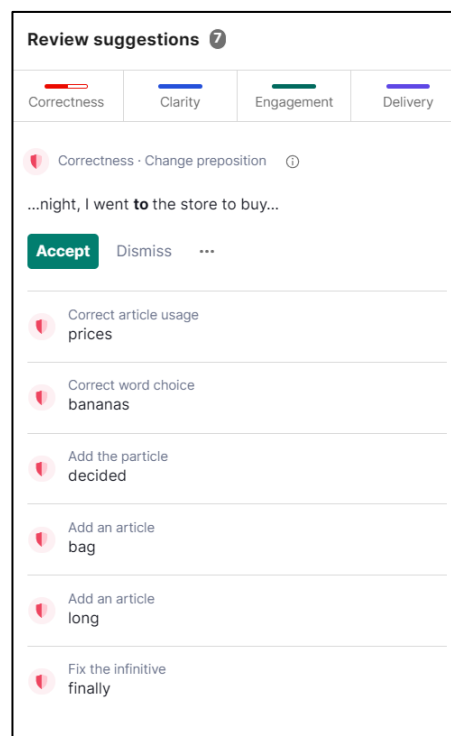


Figure 4.5 Errors Report made by Grammarly

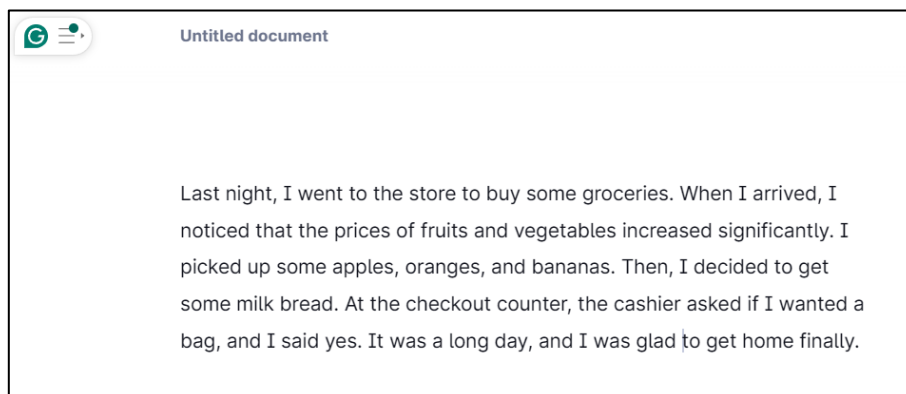


Figure 4.6 Revised Paragraph Out of The Report

There are ways to use Grammarly for grammar correction, here are the steps that the researcher finds easy to do:

- 1) Install Grammarly: Add the Grammarly extension to your web browser or install the desktop application.
- 2) Create an Account: Sign up for a free or premium Grammarly account.
- 3) Upload or Copy Text: Open Grammarly and either upload your document or paste your text into the Grammarly editor.
- 4) Review Suggestions: Grammarly will automatically analyze your text and highlight errors.
- 5) Apply Corrections: Click on each highlighted error to see Grammarly's suggestions and apply the recommended corrections.
- 6) Learn from Feedback: Review the explanations provided for each correction to understand the grammar rules and improve your writing skills.

2. Addition Error: ChatGPT

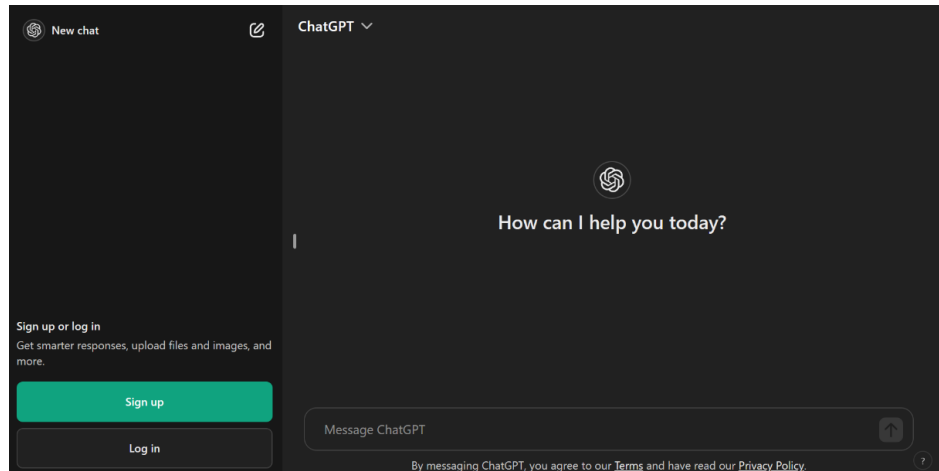


Figure 4.7 Home Page of ChatGPT on Computer

Addition errors involve the unnecessary inclusion of words in a sentence. ChatGPT excels at identifying and rectifying addition problems due to its sophisticated contextual comprehension and interactive conversational abilities. ChatGPT can enhance the clarity and conciseness of the content by detecting unnecessary words and offering suggestions for their removal based on the surrounding sentence context.

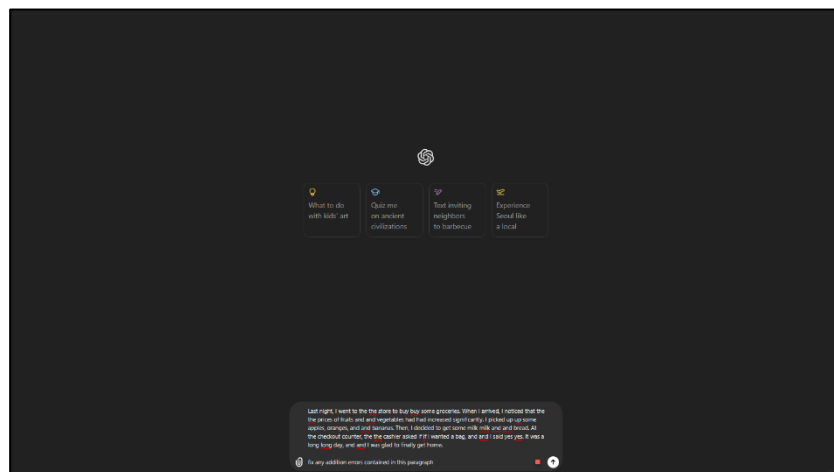


Figure 4.8 Main Layout with Example Paragraph Containing Addition Errors

ChatGPT, an advanced AI language model created by OpenAI, is specifically designed to comprehend, and produce writing that closely resembles human language. The grammar correction capabilities of the system are based on its sophisticated deep neural network design, which analyzes large datasets to identify and reproduce language patterns.

Grammar Correction Features of ChatGPT:

- 1) Contextual Comprehension: ChatGPT examines the context of the text to accurately detect and rectify grammatical problems.
- 2) Real-Time Feedback offers instant edits and suggestions to users as they enter text, enabling fast enhancements.
- 3) Explanations for Corrections: ChatGPT has the capability to provide explanations for why a correction is necessary, so assisting users in comprehending the underlying grammatical principles.
- 4) Interactive Dialogue: Users have the ability to inquire about further information and obtain extra explanations regarding grammar concepts, so enriching their learning experience.

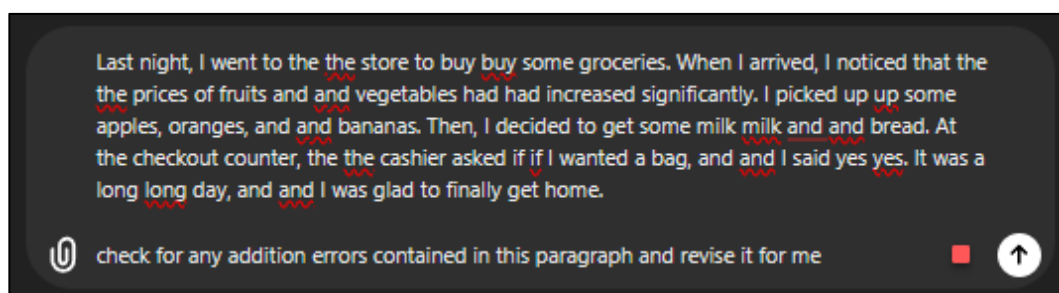


Figure 4.9 Zoomed-In of the Paragraph and the Prompt for Errors Revision

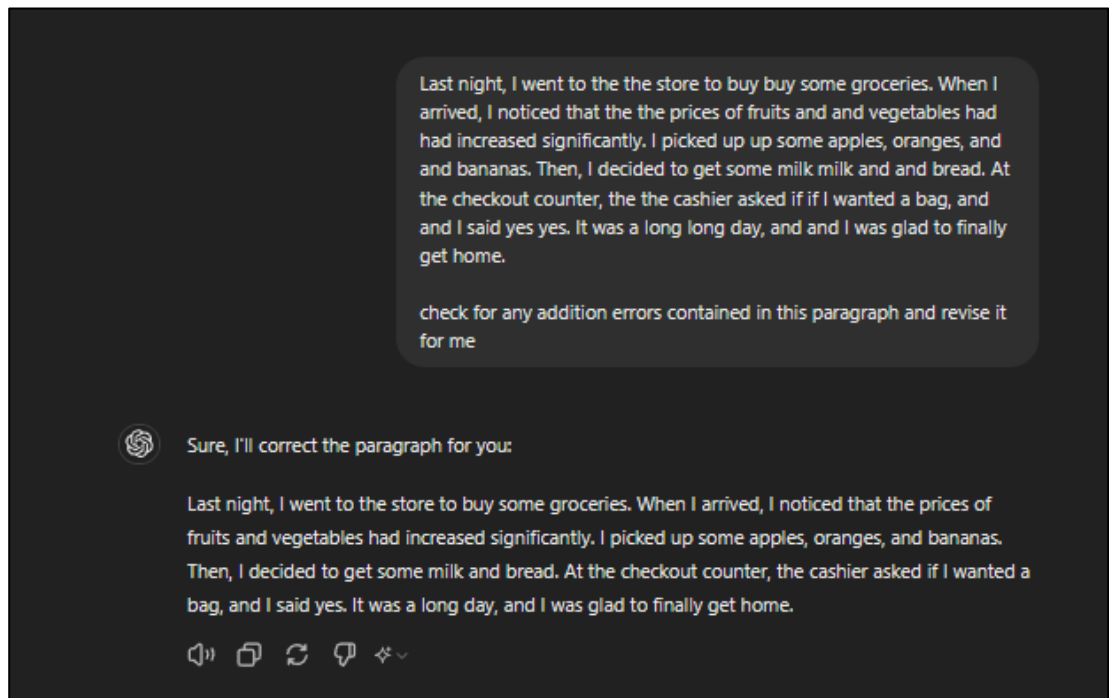


Figure 4.10 Result from ChatGPT after Inputting the Request

There are ways to use ChatGPT for grammar correction, here are the steps that the researcher finds easy to do:

- 1) Access ChatGPT: Go to the OpenAI website or use a platform that integrates ChatGPT.
- 2) Start a Conversation: Initiate a chat session with ChatGPT.
- 3) Input Text: Copy and paste your text into the chat window or type it directly.
- 4) Request Grammar Check: Ask ChatGPT to review the text for grammatical errors.
- 5) Review Corrections: ChatGPT will provide suggestions and corrections in the chat.

6) Apply Corrections: Implement the suggested changes in your text.

7) Ask for Clarifications: If needed, ask ChatGPT to explain the corrections to understand the grammar rules better.

3. Misinformation Error: Quillbot

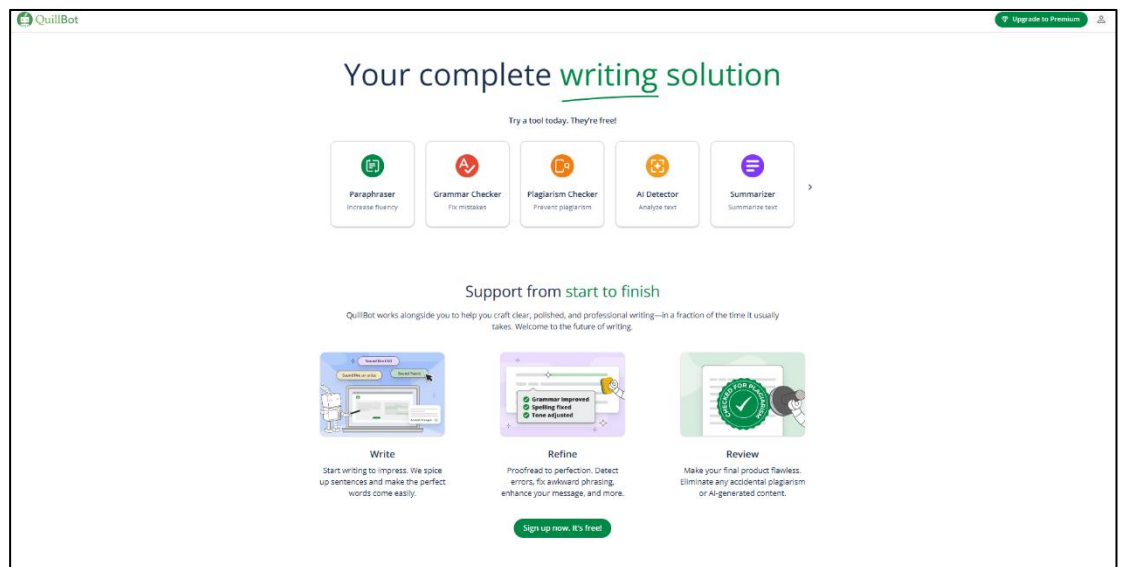


Figure 4.11 Home Page of Quillbot on Computer

Misinformation errors involve incorrect word forms, such as wrong verb tenses or pluralization. Quillbot is highly effective at correcting misinformation errors because of its robust paraphrasing capabilities and diverse writing modes. Quillbot mechanically corrects word forms as it rephrases text, ensuring grammatical precision and effectively finding and correcting misinformation mistakes.

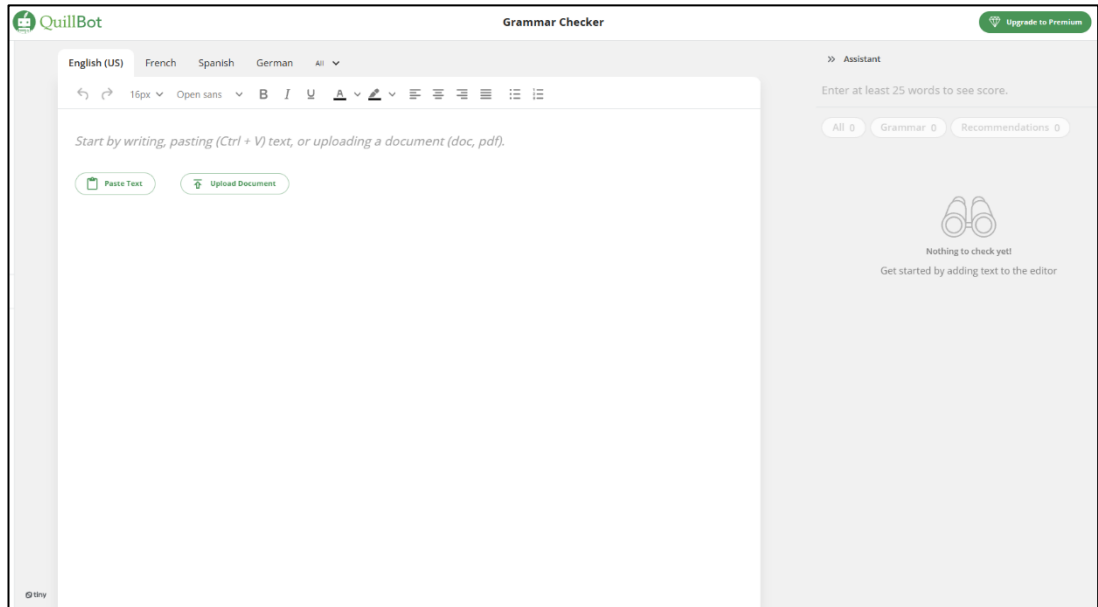


Figure 4.12 Main Layout of Quillbot on Computer

Quillbot is effective at correction any misinformation errors because of its highly advance paraphrasing features and many modes for writing. Quillbot can rephrase a short-to-long text in seconds and it shows great it is for correctiong misinformation that are contained inside of a text.

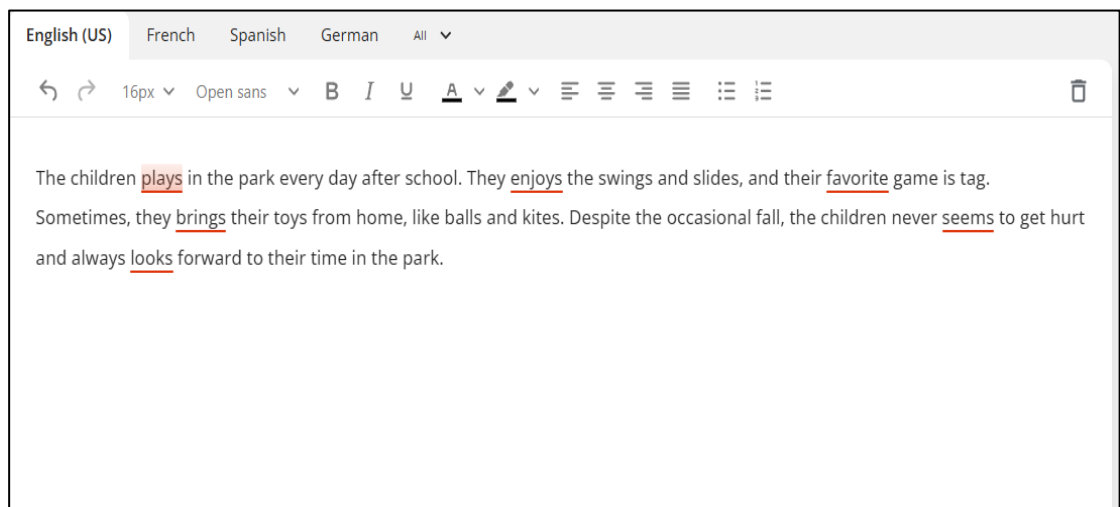


Figure 4.13 Example of a Paragraph Containing Misformation Errors

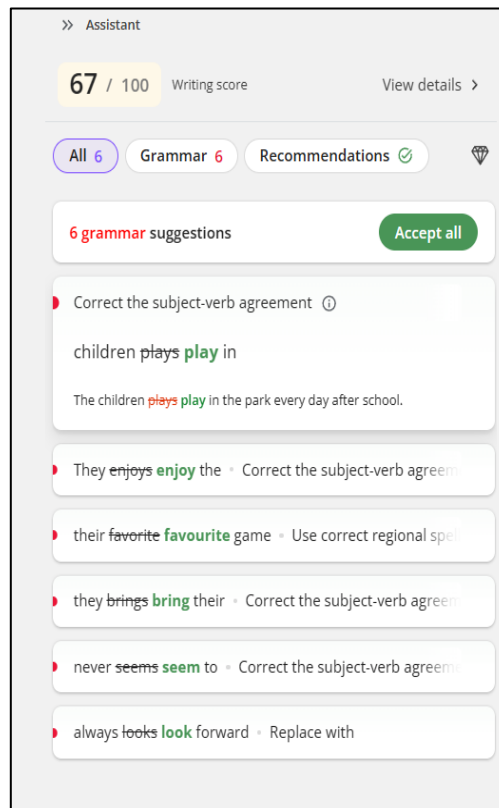


Figure 4.14 Errors Report Made by Quillbot

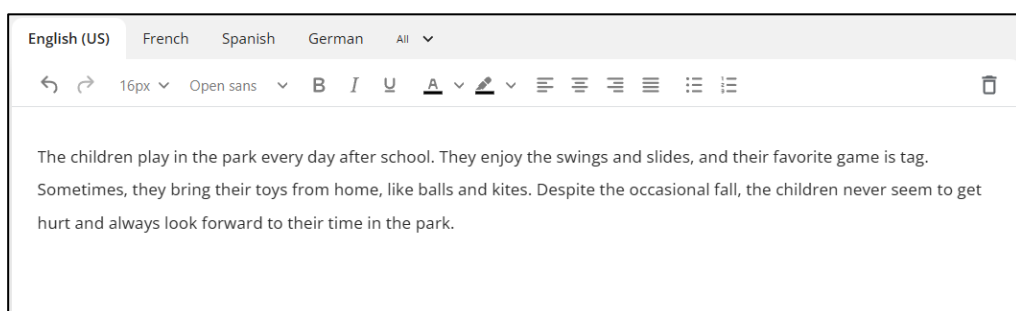


Figure 4.15 Paragraph After Being Revised by Quillbot

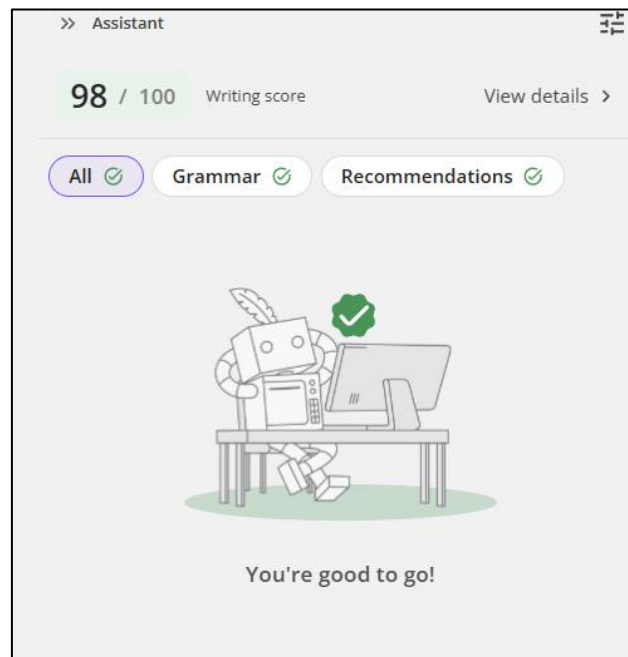


Figure 4.16 Errors Report After the Paragraph Being Revised

There are ways to use Quillbot for grammar correction, here are the steps that the researcher finds easy to do:

- 1) Access Quillbot: Visit the Quillbot website.
- 2) Select Mode: Choose the appropriate paraphrasing mode (e.g., Standard, Fluency, Formal).
- 3) Input Text: Paste your text into the input box.
- 4) Paraphrase: Click the "Paraphrase" button to initiate the process.
- 5) Review Output: Quillbot will display the paraphrased text with corrected grammar.
- 6) Compare and Apply: Compare the original text with the paraphrased version and apply the corrections to your document.
- 7) Adjust and Fine-Tune: If necessary, adjust the text using Quillbot's suggestions to ensure it meets your requirements.

4. Misordering Error: ProWritingAid

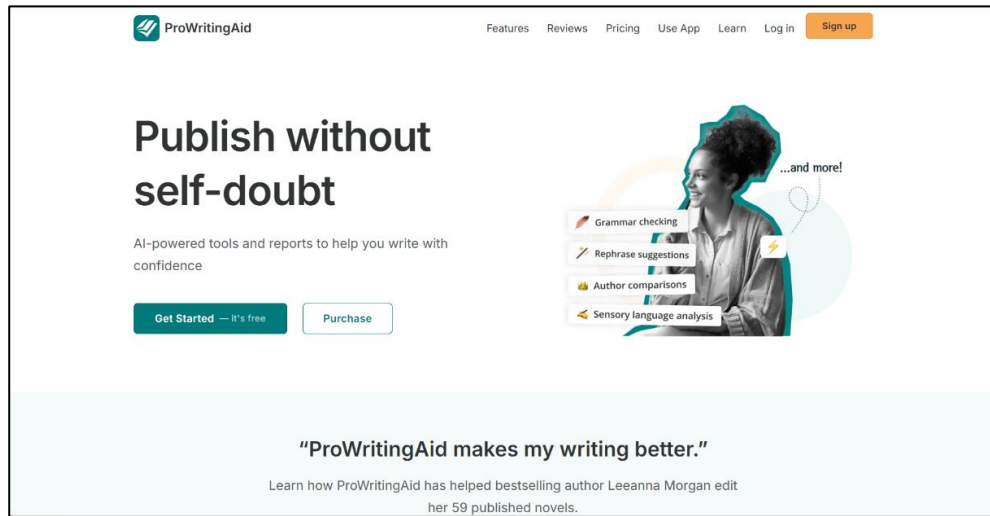


Figure 4.17 Home Page of ProWritingAid on Computer

Misordering errors occur when words are placed in an incorrect sequence within a sentence. ProWritingAid is adept at correcting misordering errors due to its in-depth grammar and style checks. Its detailed reports and contextual grammar suggestions help users identify and rectify the improper arrangement of words, ensuring that sentences are grammatically sound and logically structured.

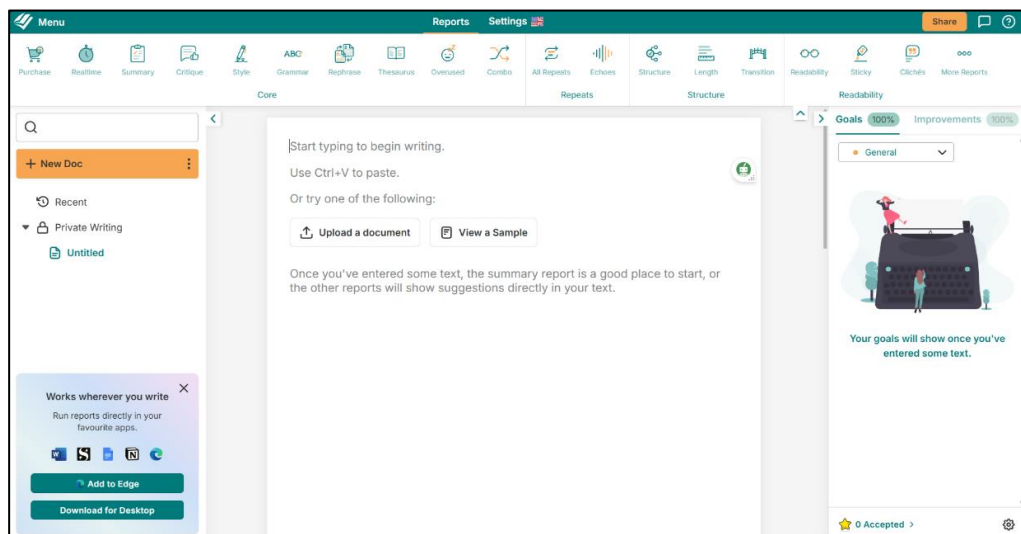


Figure 4.18 Main Layout of ProWritingAid

ProWritingAid combines AI with linguistic algorithms to offer detailed grammar correction and writing analysis. It provides comprehensive reports that highlight grammatical errors and suggest improvements.

Grammar Correction Features of ProWritingAid:

1. **In-Depth Grammar Checks:** ProWritingAid scans text for grammatical errors, including punctuation, spelling, and syntax issues.
2. **Real-Time Feedback:** Users receive instant corrections and suggestions to improve grammatical accuracy as they write.
3. **Detailed Explanations:** Each grammatical suggestion is accompanied by an explanation, aiding users in understanding and learning from their mistakes.
4. **Contextual Grammar Suggestions:** ProWritingAid considers the context of the text to provide more accurate and relevant grammar corrections.

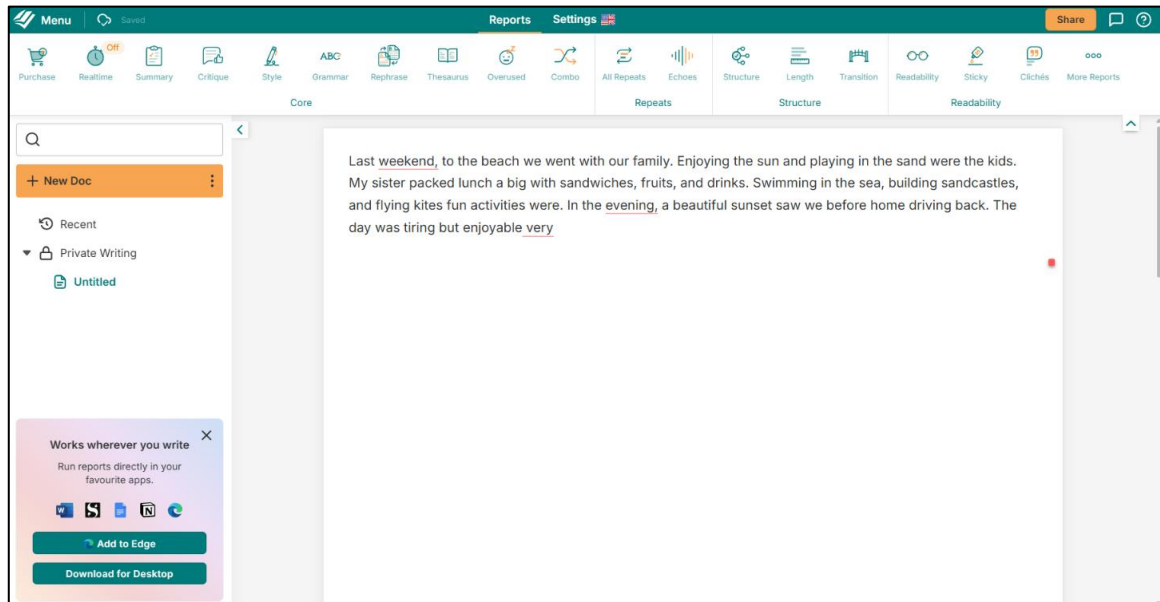


Figure 4.19 Example of a Paragraph Containing Misordering Errors

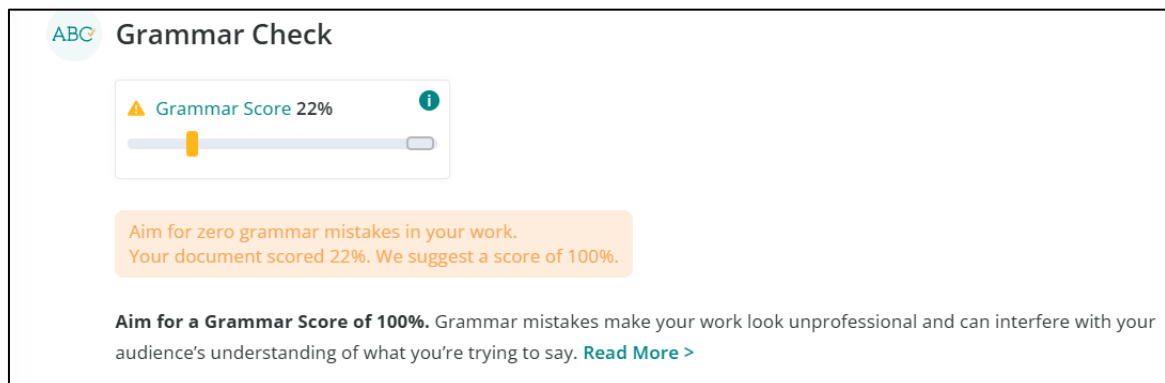


Figure 4.20 Grammar Check Report from Figure 4.5 Paragraph

There are ways to use ProWritingAid for grammar correction, here are the steps that the researcher finds easy to do:

- 1) Install ProWritingAid: Add the ProWritingAid extension to your web browser or install the desktop application.
- 2) Create an Account: Sign up for a free or premium ProWritingAid account.
- 3) Upload or Paste Text: Open ProWritingAid and either upload your document or paste your text into the editor.
- 4) Run Analysis: Click the “Analyze” button to run a comprehensive grammar check.
- 5) Review Reports: ProWritingAid will generate detailed reports highlighting grammatical errors, style issues, and readability scores.
- 6) Apply Corrections: Review the suggested corrections and apply them to your text.
- 7) Learn from Feedback: Use the explanations provided in the reports to understand the corrections and improve your writing skills.

B. Discussion

The researcher arrived at this discussion section after performing research using documentation. The researcher gathered and examined the data in the earlier procedure, and this study has one research question: What are Artificial Intelligences (AI) that can be used on Grammar Correction?

Researcher found there are many artificial intelligence-powered websites that can be used on grammar correction. As mentioned by(Awalin et al., 2023), revealed that employing an artificial intelligence-driven website for grammar learning resulted in enhanced grammar structures and students

starting to use the websites a helper in terms of correcting their writing. In order to address the research questions, the researcher clarified a few key points that were a component of the research findings. The inquiry posed by the study is concerning what are artificial intelligence-powered websites that can be used on Grammar Correction.

In accordance with the findings that have been presented, researcher divide the websites into four groups based on the Surface Strategy Taxonomy from Dulay, et.al (1982) about the comprehensive framework for categorizing and analyzing errors made by language learners, there are four classifications of grammatical errors: Omission Error, Addition Error, Misformation, And Misordering.

This study's findings support to the findings of previous research stated in previous chapter. Previous researches, such as the research by Allen et al. (2016), Wang (2019), and Rukiati et al. (2023) has highlighted the potential of AI tools to enhance language learning by providing personalized and adaptive assistance. These studies support the notion that AI-driven grammar correction tools can significantly improve learners' grammatical accuracy and overall language proficiency. The findings from the current study build on this body of research by demonstrating how specific AI tools address different types of grammatical errors as categorized by the Surface Strategy Taxonomy. This integration of theoretical and empirical evidence provides a comprehensive understanding of the effectiveness of AI tools in language learning.

Allen et al. (2016) study found that students using AI grammar correction tools showed substantial improvements in writing accuracy and fluency compared to those who did not use such tools. The real-time feedback provided by AI tools enabled learners to identify and correct errors immediately, leading to better retention and understanding of grammatical rules, this research provided the benefits from using four of the AI-websites in the findings, these websites can be used to help students to improve their writing accuracy and fluency.

Also correlate with Wang (2019) research explored the broader applications of AI in language learning, highlighting its positive effects on learners' overall English proficiency. The study emphasized the role of AI in providing consistent and personalized feedback, which is often lacking in traditional classroom settings. Researcher found that four of the websites can give coherence and beneficial feedback if students are using them properly to correct their grammar errors in their assignments.

Rukiati et al. (2023) study identified specific research gaps, particularly the need for focused investigations on the effectiveness of AI-driven grammar correction tools. Rukiati et al. (2023) noted that AI tools are highly effective in improving grammatical accuracy, is aligned with what the researcher found in researching four of the AI-websites, that these websites can help students in fixing their grammar errors.

The Surface Strategy Taxonomy, developed by Dulay et al. in 1982, provides a thorough framework for evaluating the effectiveness of grammar correction tools driven by artificial intelligence. This taxonomy classifies grammatical faults into four categories: omission, addition, misformation, and misordering. The results of this study confirm the previous findings of Allen et al. (2016), who showed significant enhancements in the precision and fluency of writing among students utilizing artificial intelligence grammatical correction tools. The instantaneous feedback offered by these tools allows for prompt error correction, resulting in enhanced memory and comprehension of grammatical rules.

Furthermore, Wang (2019) examines the wider range of uses for AI in language acquisition and emphasizes the advantages of regular and customized feedback, which is frequently absent in conventional classroom environments. This study expands on previous research by demonstrating the efficacy of AI products like Grammarly and ProWritingAid in specifically targeting and correcting grammatical problems, as classified by the Surface Strategy Taxonomy. Grammarly is highly proficient at detecting and rectifying omissions and misformations, while it may have difficulties in identifying more subtle errors within intricate sentences (Awalin et al., 2023). ProWritingAid offers comprehensive grammatical checks and contextual suggestions to repair misordering issues and improve sentence clarity. The results highlight the capability of AI tools to enhance both grammatical precision and offer a more dynamic and adaptable learning experience (Rukiati et al., 2023). By

combining these theoretical ideas with empirical evidence, the study enhances our knowledge of how AI might improve grammatical proficiency in language teaching.

Overall, this study discovered that artificial intelligence (AI)-driven grammar correction websites enhance grammatical accuracy while also promoting the social and cognitive components of language acquisition. The aforementioned websites offer a comprehensive method of teaching languages by integrating interactive feedback, error correction, understandable input, and improved linguistic form awareness. By thoroughly answering the research question, this study demonstrated how AI-Driven websites have the ability to transform grammar errors into a correct form and with accurate accuracy and easy to understand coherence text.