

AI Tools Assisting in The Proofreading and Scientific Review of Research Papers**Ahmed Shaker Alalaq***

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Study Summary: The importance of using artificial intelligence tools in various fields, including proofreading and scientific review, is increasing. These tools assist researchers in improving the quality of their work by providing precise linguistic corrections and advanced text analyses, thus enhancing the clarity of ideas and the effectiveness of scientific communication. Additionally, these tools save researchers time and effort, allowing them to focus on research content. Utilizing these tools can also increase the chances of research publication in prestigious journals.

Study Problem: Many researchers, especially in multilingual academic environments, face difficulties in ensuring the quality of their language and correcting grammatical and linguistic errors in their research papers. These errors can lead to misunderstandings of the main research ideas, negatively affecting the evaluation of their work. Moreover, a lack of language proficiency can be a barrier for new researchers. This study aims to explore the effectiveness of AI tools in text proofreading and to provide technical solutions that support researchers in achieving accurate results through linguistic review.

Keywords: Artificial Intelligence, Data Analysis, Proofreading, Review, Research Paper, Digital Revolution.**1. First: Definition of Proofreading**

Proofreading a research paper is an essential aspect of every scientific study that strengthens and enhances the quality of the research. It is one of the fundamental steps contributing to the overall academic rigor of a study. Proofreading goes beyond merely correcting grammatical and spelling errors; it also involves improving the style and clarity, which helps communicate ideas more effectively. Hence, it is said that precise, clear, and accurate language reflects the researcher's level and adds credibility to their work. Additionally, proofreading a paper can prevent misunderstandings, ensuring that the scientific message reaches the reader without ambiguity. It is noteworthy that many researchers neglect this crucial step and do not send their paper to linguistic reviewers for reading and evaluation, which is, in fact, considered unacceptable in rigorous scientific research [1].

Proofreading is the process of reviewing, identifying, and correcting grammatical, spelling, typographical errors, punctuation marks, connecting clauses, long sentences, and sentence fragments in a manuscript draft before submission for evaluation. Common errors

found in a paper's text can be typographical (printing mistakes) or grammatical (incorrect or non-standard usage of language or terms). However, proofreading can also involve identifying and rectifying issues related to the narrative flow of the paper—such as logical sequencing of ideas and arguments, issues with conciseness, and inaccuracies in vocabulary. It also addresses problems arising from word-processing software, including unintended fonts, indented paragraphs, line spacing, uneven margins, or inconsistencies in headings, sentences, or words [2]. The more often you read your research paper, the fewer errors it will contain.

Proofreaders typically check for consistency in formatting, referencing, and highlight any inconsistencies in terms or interpretations used in the text [3].

2. Second: The Importance of Grammatical and Linguistic Proofreading for a Research Paper:

- Grammatical and linguistic proofreading enhances the reader's understanding and engagement with the written scientific material.

- The use of distinctive grammatical and linguistic terms adds to the quality of the research.
- It strengthens the structure of sentences used in the research and the credibility of the scientific material [4].
- "Collaborative proofreading," which involves multiple reviewers, is preferred as it can improve the linguistic quality of the paper [5].
- Proofreading also helps you detect and fix subtle errors that may have slipped through while focusing on research and writing.
- It is essential to note that proofreading differs from editing, as many researchers tend to view editing and proofreading as one process. Editing precedes proofreading and involves focusing on the overall clarity of the research paper by addressing grammatical and spelling issues and ensuring readability [3].

3. Third: Scientific Review of the Research Paper Topic

Conducting a thorough review of the research content and scrutinizing all sources and references used is crucial to avoid the issue of unintentional plagiarism by failing to credit original research authors. The importance of good research extends beyond just strong writing; it must also be well-edited, formatted, and reviewed. Ensuring the content is robust and free of typographical, grammatical, and formatting errors is essential. If your academic paper or research thesis is clear, logical, and error-free, the reader

can quickly engage with your ideas. When this is not the case, the reader may respond negatively. High-quality editing and reviewing processes play a significant role in enhancing the scholarly integrity of the content. Editing is needed when there are issues with content structure, flow, or clarity, while reviewing helps identify and correct grammatical errors.

Author Brittney Sahin provides insights into how to review or edit the content of a research paper. She states: "In academic writing, editing a research paper ensures that the topic or idea aligns with the quality of the content created. It guarantees that your content is flawless, plagiarism-free, and of high quality. Working with editing and review experts to revise your manuscript is a step in the right direction. Your ideas and message should be communicated clearly and effectively. Elements such as inadequate language, potentially sensitive word choices, grammatical mistakes, and improper formatting can disrupt flow and confuse readers. However, with high-quality editing, your article becomes polished, smooth, and clear, with content structure corrected to reflect the essence of your original idea for readers. Moreover, reviewing the research material can make your study more readable. The proofreading and editing process helps present your research at its best, making it attractive and outstanding. Therefore, before submission, review and edit it" [6].

| Proofreading | Editing |
|---|--|
| Formatting language to achieve consistency between sentences and the use of terms relevant to the research topic, avoiding contradictions or excessive repetition of certain words. | Improving the overall quality of the text, including the title, abstract, introduction, content, and research structure. |
| Enhancing writing and sentence quality. | Addressing any language issues according to the purpose of the text and the intended research idea. |
| Removing grammatical, spelling, typographical errors, and punctuation issues. | Clarifying expressions, sentences, and the general idea. |
| Ensuring the document is linguistically and orthographically ready for publication. | Eliminating errors and inconsistencies. |
| Less expensive than editing. | Maximizing the impact of the message directed at the target reader, especially concerning objectivity and assertiveness. |

Table 1: It showing the Difference Between Proofreading and Editing (Author Services Elsevier, n.d.)

4. Fourth: AI Tools in Proofreading and Editing

The digital revolution has provided a wide range of tools for proofreading, grammar checking, and manuscript editing. Among the most prominent of these tools is: Smodin: This is one of the intelligent websites that offers a large number of AI-generated text tools for writing articles, studies, and research papers, which can help break the hesitation barrier for many researchers when it comes to writing their research papers, articles, scientific papers, or other research-related concepts. The site supports many languages, including Arabic. Among the tools provided by the website is a proofreading and grammar checking tool, in addition to a plagiarism detection feature. Through this tool, any text can be checked for plagiarism or academic theft. The tool provides two ways to handle the text: the first is by pasting the text for review, or by uploading a file in various formats (PDF or Word). You can then select the language or set it to "Auto," and

the corresponding box will display a plagiarism report that can be downloaded as a text report.

Furthermore, the tool itself includes a very important feature: "AI Content Detection." This means that it can detect any text generated by AI tools by placing the text in a special box. By selecting the "AI Content Detection" option, a report will appear below, showing the percentage of text generated by AI. For example, I entered a text to check the percentage of AI-generated content. Additionally, the tool offers an important feature to detect AI-written content with two options: one is pasting the content into the detection box, or uploading a ready file. Within seconds, the tool will provide a report on whether the text was written by AI or not.

Voyant Tool: This is one of the most prominent and essential AI tools for text analysis. It identifies the most frequently used

words and terms within a text, helping to detect repeated words and suggesting possible replacements. The tool supports almost all languages, including Arabic. Once you enter the website, you can paste the text you want to check or upload a file, and the tool performs its task perfectly. It provides a text analysis report, showing the repeated terms listed below the site. At the top, it displays the titles of the terms and then generates a graphical representation of the most and least repeated words within the text.

Deeply Write Tool: This tool helps in rephrasing and improving the quality of written texts. It identifies the accuracy of the words and terms used within the text and adjusts them. A notable feature of this tool is that the researcher can choose the tone of the generated text (formal, informal, business, academic). Additionally, it allows you to select the type and style of vocabulary (serious, humorous, enthusiastic, etc.). Once the text is edited, you can click on any sentence or word to modify it or replace it with another or to rephrase it.

Openl.io Tool: This tool specializes in rephrasing content in various languages. You simply need to paste the text in the dialogue box, and it will perform its task flawlessly. The tool focuses even on the smallest details in each word and letter, such as hamzas, commas, semicolons, quotation marks, and spaces between words or within a word.

Reverse Tool: This tool works on adjusting the rhythm of the text and producing high-quality content by adjusting sentences and words. Once you input the text or upload a file and request the tool to rephrase it, the results are truly impressive. The special feature of this tool is that you can select any sentence or word within the new text and request it to be modified or replaced with another. The tool provides a large number of alternative sentences. In the image above, I entered text and asked the tool to proofread it, and the result showed a list of linguistic or grammatical errors. The tool allows you to modify or correct each word by clicking on it and choosing the appropriate word, or you can command it to correct all incorrect words at once.

Prepossess Tool: This tool serves as a grammar and syntax checker for text content. It allows you to paste any content or upload a file or document. The tool then provides feedback on the text regarding any errors, which can be corrected, modified, or replaced with another word or sentence.

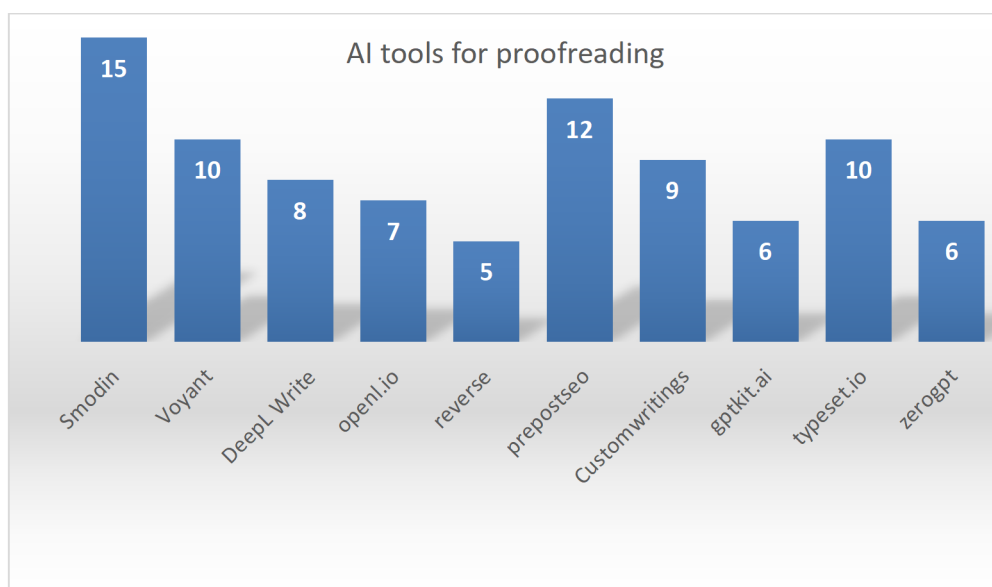
GPTKit.ai Tool: This is one of the prominent AI tools that allows researchers to detect plagiarized content or content generated by AI tools. The interface of the tool is very simple; you just need to paste the text you want to check, and it will generate a detailed report on the text analysis. In an experiment I conducted with this tool, I pasted a specific text and asked the tool to determine whether the text was written by AI or plagiarized. The answer was that the text was written by a human, and the tool gave a numerical result showing that 79% of the text had not been generated by AI tools.

Customwritings Tool: This is one of the important tools for detecting plagiarism in text content. The tool relies on AI to analyze the content of a research paper and check its plagiarism percentage. You simply need to enter the text into the dialogue box, and the tool will analyze it and give you the result immediately.

Prepostseo Tool (Plagiarism Detection): Among the tools provided by this website, there is a plagiarism and academic theft detection tool. Once you input the content you want to check, the tool provides a complete report on the content, and the report can be downloaded as a PDF file.

Typeset.io Tool: This tool helps detect whether the text has been generated by AI or not. Through this tool, researchers can identify texts produced by AI tools. Once you paste the text into the dialogue box or upload any file, the tool analyzes the text and reveals how much of it was written by a human hand. For example, I pasted a text and asked the tool to analyze it and give me a report on whether it was generated by AI. The result showed that the text was written by a human, with no involvement from AI tools (100% human-written).

ZeroGPT Tool: This tool is designed to detect content written by AI. It is one of the most prominent smart tools for handling all types of files and written content. The tool supports text input via PDF files or URL links. The site provides content analysis with accuracy rates exceeding 98%. It is especially useful for researchers, specialists, and graduate students to verify the integrity of the content they write. I pasted a text and asked the tool to provide a report on whether the text was written by AI. The result showed that the text was 95.30% written by a person and 4.70% involved AI generation.



Researchers can utilize artificial intelligence in various ways for proofreading and grammatical correction of their research and writings (Khalifa & Albadawy, 2024):

- **Spelling and Grammar Checking:** AI can review the texts provided by researchers and search for spelling and grammatical errors, correcting them accordingly (Giglio & Costa, 2023).
- **Providing Feedback on Style and Expression:** AI can evaluate sentences and paragraphs to ensure they are clear, understandable, and written in a style suitable for academic context. This helps reduce errors that researchers might make (Khedkar, 2023).
- **Assisting in Correct Terminology Usage:** AI can check whether academic and technical terms are used correctly.
- **Assisting with Citation and Reference Formatting:** AI can help ensure that citations and references are written and formatted according to academic standards such as APA, MLA, or Chicago style.
- **Providing Writing Improvement Tips:** AI can offer general advice on how to enhance writing skills and develop academic style (Chat GPT – 4).

| Step | Example | Notes |
|------------------|---|---|
| Grammar Checking | Ensuring sentence structure, verb tense agreement, and grammatical constructions. | The choice of style depends on the requirements of the university or publication. |
| Rephrasing Check | Clarifying ideas, organizing the text, and ensuring smooth transitions between ideas. | Not all information may be available from every source. |
| Spelling Check | Ensuring correct spelling of words, letters, and numbers. | Formatting methods may vary from one style to another. |
| Style Checking | Ensuring consistency in style and precise word choice. | Citation style within the text may differ based on documentation style. |
| Content Review | Ensuring accuracy of information and citations. | It is preferable to use reference management software to ease the citation process. |
| Formatting Check | Proper formatting of text and graphics. | - |

Table 2: Representing AI Steps for Grammar Checking and Review According to GPT Model

Conclusion

In conclusion, this study demonstrates that artificial intelligence tools represent a true revolution in the field of language proofreading and academic review. These tools provide researchers with the ability to significantly improve the quality of their work by offering precise language corrections and enhancing the clarity of the ideas presented. As a result, researchers can focus on the scientific content rather than worrying about linguistic errors,

which increases the likelihood of publishing their research in prestigious academic journals.

The findings also confirm that using artificial intelligence tools enables researchers to save time and effort, thereby enhancing the overall efficiency of the research process. Therefore, the academic community should embrace these modern tools and work to integrate them into the daily workflow of researchers.

However, it should be noted that these tools are not a substitute for human understanding and linguistic expertise. They should be used as a supplementary tool that complements the researchers' linguistic skills and contributes to achieving the desired academic outcomes. In the future, it is expected that these technologies will continue to evolve, providing more opportunities for innovation in how scientific research is conducted and written.

In conclusion, the importance of these tools lies in their role in raising the standard of scientific research and fostering effective communication between researchers and readers, contributing to the creation of a strong academic community capable of successfully facing future challenges.

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