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#### Research

# Navigating the impact: a study of editors' and proofreaders' perceptions of AI tools in editing and proofreading

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#### **Abstract**

Human editors and proofreaders now face a new, and possibly serious, challenge: the emergence of artificial intelligence (AI) tools that some consider to be as efficient and precise as experts in editing/proofreading. This research aims to investigate editors' and proofreaders' perceptions of current AI tools. It examines whether editors/proofreaders view AI as an opportunity or a threat and considers their insights into the future of AI tools for them. The study collected qualitative data through email questionnaires from 17 professional editors and proofreaders purposively appointed from a society of professional editors and proofreaders in Egypt. The results revealed that the responses regarding AI for editors and proofreaders are generally mixed, with a range of both positive and negative perspectives. Some responses highlight the opportunities and benefits that AI tools can bring, such as increased efficiency, time-saving, and improved productivity. Others express concerns about potential threats, such as the possibility of AI replacing humans, ethical considerations, and the need for continued human involvement in the editing/proofreading process. Overall, the attitudes toward AI tools for editing and proofreading reflect a paradoxical view of the technology's impact on the field. The active engagement and participation of editors and proofreaders are essential for the successful implementation of AI technologies in editorial contexts.

**Keywords** Artificial intelligence · Editors · Proofreaders · Perceptions · Technology · Challenges

## 1 Introduction

Editing and proofreading are vital steps in the writing process, typically occurring just before publication. According to Aherne [1], after an author writes a manuscript and a publisher accepts it, the production process of the publication ideally consists of the following steps: editing the author's manuscript (usually in Word format), designing the publication, proofreading the publication (usually in PDF format), typesetting and making final proofs, and publishing the final publication whether in print or online or both. While editing seeks to identify and rectify issues such as grammar, verbosity, tone, style, fact-checking, and syntactic and semantic elements, proofreading is a subsequent phase that aims to review the editor's work, addressing potential errors and refining on-page elements like headers, footers, and formatting matters [6]. Traditionally, this process has been carried out by human experts in the respective field and language. Despite probable long-standing use of technology, these human editors and proofreaders now face a new, and possibly more serious, challenge: the emergence of artificial intelligence (AI) tools that some consider to be as efficient and precise as experts in human editing and proofreading.

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Recent Al tools, including ChatGPT and other generative technologies, whether as standalone systems or integrated within applications like Grammarly and others, have garnered significant attention. This is because they assert their capabilities to produce human-like language that is not easily distinguishable across various contexts [10]. This potentially poses a threat to editors and proofreaders whose work centers around identifying language errors. However, others may view this as an opportunity for editors and proofreaders to focus on the essential human processes, such as cultural, religious, and social norms, leaving mechanical aspects for Al tools to handle. The introduction of advanced and well-trained Al tools accentuates the need for research to explore how editors and proofreaders perceive these tools, considering both their advantages and potential drawbacks. This study is thus undertaken to address this necessity.

This study attempts to answer the following research question:

What are the perceptions of professional editors and proofreaders toward the use of AI tools in editing and proofreading?

To answer this main research question, a series of sub-questions are investigated according to the perspective of professional editors and proofreaders:

- 1. What are the major benefits of using AI tools for editing and proofreading?
- 2. What are the major limitations or challenges of using AI tools for editing and proofreading?
- 3. What is the future of AI for editors and proofreaders?

The rest of the paper is organized as follows: Sect. 2 provides a review of the related literature. Section 3 presents the methodology adopted in this study. The analysis and discussion are mentioned in Sect. 4. Section 5 concludes the paper.

## 2 Review of related literature

This section offers a brief history of AI and its evolution, followed by a review of related literature to demonstrate its impact on recent domains and research.

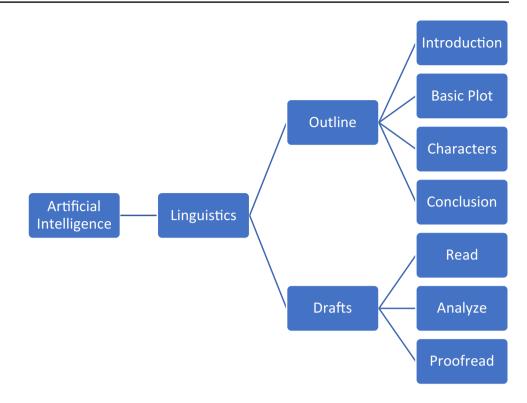
According to Toosi et al. [23], Al, originally conceived as computers mimicking human perceptions, can trace its origins back to Isaac Asimov's 1942 work "I, Robot," which explored the rules governing human—robot interaction. However, the term "artificial intelligence" was first formally coined during a two-month workshop at Dartmouth College in the summer of 1956 by John McCarthy, who defined it as the science of creating intelligent machines. Since then, with advances in microchip technology and the ability to harness vast amounts of data, Al has evolved into an attractive investment opportunity, generating billions of dollars in profit annually. This advancement has led to the widespread adoption of Al tools across various domains, to the extent that it has become a global phenomenon. This, in turn, has prompted notable figures to make bold statements, considering Al as a milestone in human history. For example, Fig. 1, adapted from Toosi et al., illustrates the strong impact of Al on just one field: Linguistics. As can be seen from the figure, one of the main processes affected by Al is proofreading.

Some recent studies reviewed the use of AI in various domains, such as in writing (e.g., [5, 8, 12]). They focused on evaluating the use of ChatGPT in academic writing. However, they did not tackle the performance of AI in editing/proofreading texts. Moreover, a few studies served as a guide to using AI tools in academia (e.g., [13, 17]). They provided answers to why these tools should be used and how they can be used to maximize their benefit and avoid their limitations. The scope of these studies was broad, nevertheless, discussing the issues and prospects of using AI tools in scholarly work in general. Other studies were found to discuss the perceptions of the users of AI tools toward their performance and outcomes (e.g., [3, 14, 21]). However, the participants of these studies were teachers and students aiming to evaluate the use of AI tools in learning and teaching.

Furthermore, some studies tried to answer whether AI is a promising tool or a fearful threat to academia (e.g., [2, 9]). Both studies reached the conclusion that AI tools like ChatGPT are both an opportunity and a threat. They can boost academic production, but at the same time, their risks to academic integrity, accuracy, and reliability require attention from all parties, from the users who should use these tools carefully and responsibly, to the institutions who should make use of all possible resources to avoid the risks of AI. The authors, for instance, suggest a number of tools that can distinguish between a text written by an AI bot and another written by a human being. These AI detection tools include AI Text Classifier, GPTZero, crossplag.com, copyleaks.com, and so on. The current study attempts to address the same question of whether AI tools are an opportunity or a threat, and extends to other equally important questions, within the specific



Fig. 1 Linguistic areas affected by AI (Adapted from [23])



scope of the copyediting/proofreading field based on the viewpoints of professional copyeditors/proofreaders. Other studies investigated the legal and ethical side of using AI technologies. For example, Cheong [7] discussed whether AI systems should be considered a legal person, having rights and obligations. The article concluded that AI systems that show high independence are more likely to be considered legal persons in the future. Nevertheless, the current study focuses on the use of AI in a certain domain (i.e., copyediting/proofreading) with an aim to give a comprehensive view of this domain based on the perceptions of its members, where the legal or ethical aspect is only one of many aspects explored.

Two studies were found related to the use of AI in editing/proofreading, and both were found to investigate the effectiveness of AI editing/proofreading tools in comparison to human editors/proofreaders. Heintz, Roh, and Lee [11] compared the accuracy and effectiveness of an AI proofreading tool (i.e., Wordvice) to the proofreading tools of two applications (i.e., Google Docs and Microsoft Word) and expert human editors/proofreaders. The sample included 1245 sentences from different domains. The authors found that the Wordvice AI proofreading tool performed at a level close to that of the human experts and exceeded the performance of the proofreading tools of the other two applications. Therefore, they concluded that Wordvice is a recommended proofreading tool that can offer promising outcomes. The study, however, was only focused on a single AI proofreading tool, with a possible conflict of interest since the authors are employees of the company that produced that tool. The study also did not study how the human expert editors/proofreaders viewed using AI tools in their work.

Another study comparing the performance of Al editing/proofreading tools to expert editors/proofreaders was that by Özçelik [15]. This time the Al tool under study was ChatGPT. Seven research abstracts were given to ChatGPT and human language experts to proofread. Then, the proofread versions were given to the seven abstract authors and an external language expert to decide which was done by Al and which was done by humans from their point of view. Only half of the answers were correct guesses, which reflects the good proofreading efficiency of the Al tool. The study concluded that ChatGPT could be a helpful tool in detecting spelling, punctuation, and capitalization errors and saving time. However, it may have biases and inaccuracies, such as its preference for American English over British English and the tool's limited ability to understand a text's context, tone, or culture. Therefore, according to this study, ChatGPT cannot replace a human editor/proofreader but can be a convenient assisting tool.

Thus, there is a lack of studies regarding the use of AI in editing/proofreading. More studies are needed to assess AI tools in editing/proofreading, being an integral step in the writing and publishing process, and to look into how these



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tools are perceived by professional editors/proofreaders, being important stakeholders and service-providers in the publishing industry.

The main idea of this research is to navigate the impact of AI tools on the work of professional editors and proofreaders, as informed by their expertise and perspectives. In contrast to prior research, which predominantly focused on specific AI applications and overlooked the perspectives of the users of these tools, this study empowers professionals in the field to articulate their insights and reflections on the present and future role of AI in editing and proofreading. By presenting the perceptions of editors and proofreaders regarding the strengths, weaknesses, opportunities, and threats of AI, this research offers a comprehensive understanding of the landscape in the editing and proofreading domain.

# 3 Methodology

# 3.1 Research design and instrument

This study is mainly qualitative since it explores a relatively unexplored topic. The researchers used email interviews as the data collection instrument, thus allowing the participants to answer at their own pace, which serves the accuracy of the answers [14]. The interview questionnaire consisted of six open-ended questions designed to align with the research inquiries at hand. Open-ended questions were employed in order to allow the participants to express their ideas openly, which serves the objectives of the study. Notably, the interview questions were conducted in the English language.

# 3.2 Participants

The study participants were 17 professional editors and proofreaders purposively sampled from a society of professional editors and proofreaders in Egypt based on their professional experience and willingness to participate; this sampling technique was considered convenient for the study as it is a kind of non-probability sampling method in which participants are selected based on established criteria and aims [20]. Participants were primarily in their 30 s and 40 s, with an average age of around 37 years. The gender distribution showed more participation of females, with 12 identifying as female and 5 as male. The majority, 14 participants, reside in Cairo, while 3 are in Giza. Regarding the highest academic degree earned, 5 participants hold a Ph.D. degree, 3 have a master's degree, and 9 have a bachelor's degree. In terms of professional experience, there was a diverse range, from 8 to 31 years, while 2 participants reported having one year of experience. In summary, the group mainly comprised experienced professionals with varied educational backgrounds.

#### 3.3 Procedure

The researchers reached a group of professional editors and proofreaders to participate in this study. Seventeen individuals from this group consented to participate, subsequently receiving the interview questionnaire. Participants were allowed time to answer the questions unrushed, and a reminder was sent when required. The researchers also remained readily available to attend to any queries or concerns raised by the participants, ensuring that their responses would be rendered with the utmost precision. After that, the researchers collected the responses and divided them into themes for analysis and discussion.

# 4 Results and discussion

# 4.1 Advantages of AI for editors and proofreaders

Participants were positive in their views on AI for editors and proofreaders, as they indicated their use of AI tools such as Grammarly, PerfectIt, QuillBot, Trinka, Hemingway Editor, and ChatGPT, with Grammarly, ChatGPT, and PerfectIt being reported as the most used tools among the surveyed group (used by 13, 8, and 7 of the participants, resp.). Their reported positives fell into two main categories: time-saving and enhanced quality and productivity. Table 1 provides examples for each label.

Hence, all participants were found to be users of AI tools in editing and proofreading and agreed that these tools are beneficial to their work. This finding supplements the research conducted by Heintz, Roh, and Lee [11] on the utility of



Table 1 Advantages of AI for editors/proofreaders

Time-saving	Enhanced quality and productivity
"They also make the work faster" (P1, Ph.D.)  "These help fasten the editing process" (P2, B.A.)  "Saving time" (P3, B.A.)  "They can definitely help speed up editing and hence save a lot of time" (P5, B.A.)  "It can reduce time needed for editing and proofreading" (P9, M.A.)	"Al tools act as a second eye to catch any error I may have missed, and therefore they increase quality" (P1, Ph.D.)  "It gives me ideas especially when I'm having a mind block" (P4, B.A.) "Inspire me with different ways of restructuring sentences, spot missing clear errors, help in consistency" (P6, B.A.)  "Not skipping any stylistic changes and detecting all inconsistencies" (P11, B.A.)  "It makes me more confident that my work has no issues or mistakes" (P14, Ph.D.)

Wordvice for editors/proofreaders by suggesting PerfectIt and Grammarly as effective tools for the editing process, thus reinforcing the usefulness of AI tools for editorial professionals. It also agrees with them, along with Razack et al. [17], Lin [13], Barrot [5], Dergaa et al. [8], Huang and Tan [12], and Özçelik [15] concerning the benefits of using AI in making texts more polished and linguistically sound in a timely manner.

# 4.2 Disadvantages of AI for editors and proofreaders

Responses to the question tackling the limitations or challenges of using AI tools in editing/proofreading were categorized under four main labels: accuracy, dependency, ethical and perceptual challenges, and cost and access issues, with the majority reporting difficulties with the accuracy and reliability of AI tools. Table 2 provides some examples for each label.

This shows that most participants agreed on the benefits of AI tools in editing and proofreading for saving time, enhancing productivity, and improving quality. However, they also suggested that these tools are not perfect and have some clear drawbacks related to accuracy, dependency, ethics, and cost. These contradictory results reported by editors/ proofreaders regarding the possible benefits and drawbacks of AI align with previous research in other domains. For instance, Barrot [5] and Dergaa et al. [8] mentioned that AI has both the potential to make use of and pitfalls to be careful of, and they provided a list of these pitfalls which included the accuracy and reliability issues. Özçelik [15] also asserted that AI tools may show inaccuracies and, therefore, their work should be reviewed by humans and not taken for granted. Moreover, in an article by Allyn [4], it was found that Microsoft Bing Chatbot may produce aggressive responses, while another article by Schardt [19] found that ChatGPT may fabricate stories, potentially misleading its users.

# 4.3 Ethical concerns

Respondents reported many ethical concerns that were indicative of the problematic nature of AI use among many professionals to reveal the difficulties behind approving these tools for general use. Some of these concerns are related to "plagiarism and originality."

Participants reported Al use as a form of plagiarism, "I think plagiarism is the main concern. I realize that many people think using Al makes them feel as if it's not really their own work" (P4, B.A.). Along the same line, some respondents expressed their disagreement with using these tools to generate text because they considered this to be unoriginal, "I disagree on using this technology in writing or doing assignments" (P11, B.A.). Additionally, some people considered the use of Al tools to be a means of cheating, "Yes, some people believe it is a kind of cutting corners or cheating. Some countries banned their use" (P14, Ph.D.). The concern regarding plagiarism was also documented in research on Al in education, where studies by Perkins [16] and Sharples [18] highlighted the potential increase in plagiarism and a decrease in academic integrity due to students' possible unethical use of Al.

Other main concerns expressed could be labeled under "data privacy and security," where respondents expressed their fear of sharing personal or confidential information online, for example, "Yes, there are some ethical concerns like privacy (uploading confidential content) and ownership (who owns the text generated by the AI)" (P12, B.A.) and "Yes, there are privacy issues related to data storage" (P16, Ph.D.). The same concern was addressed in AI research by Shin [22], who proposed specific trust algorithms and frameworks for users to ensure the secure and private use of these tools.

Despite the many concerns that were reported, some respondents showed general use with oversight of the probable ethical issues of AI, as follows:



Accuracy and reliability issues	Dependency	Ethical and perceptual challenges	Cost and access issues
"Some of the suggestions may be incorrect or inaccurate, and therefore they should be reviewed before applying them" (P1, Ph.D.) "They are not as accurate as humans; you have to double-check your text after using the tools" (P2, B.A.) "The tool is never 100% accurate. Grammarly, for example, underlines phrases and structures that are totally correct" (P3, B.A.) "Not all suggestions and edits by Al tools are correct; it really depends on context, which as far as I know can only be assessed by a human editor" (P5, B.A.)	"It makes you depend on it that you forget to check the style while editing, so if you get to edit without a tool, you may need time should be done" (P14, Ph.D.) to get used again to checking everything" "Some people believe it is cheating to use / (P10, M.A.)  "It might reduce the proofreaders and editors' editing skills over time, same as what our reliance on calculators and mobile phones have done to our mental and memorization skills" (P9, M.A.)  "Over-use may lead to oversight of context/ genre-specific errors" (P15, Ph.D.)	"First, it needs the person asking the question to be an expert who knows what should be done" (P14, Ph.D.) "Some people believe it is cheating to use Al tools and have negative opinions on them" (P14, Ph.D.)	"Good tools are paid, so if the company I work tion to be an expert who knows what should be done" (P14, Ph.D.) "Some people believe it is cheating to use Al (P14, Ph.D.) (P14, Ph.D.) "Subscription may be costly sometimes" (P11, B.A.) "Subscription may be costly sometimes" (P11, B.A.)

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- 1. "Concerning editing/proofreading an already written text by its author, no ethical concerns are involved" (P1, Ph.D.).
- 2. "No, as long as the job gets done and I, as a proofreader, review after the tool" (P3, B.A.).
- 3. "As long as the editor or proofreader uses them as a helping tool, I don't think there are no [sic] ethical concerns" (P6, B.A.).
- 4. "I haven't encountered any violations" (P7, B.A.).
- 5. "Not to my knowledge" (P8, B.A.).

Hence, there were conflicting opinions regarding the potential ethical issues associated with the use of AI in editing and proofreading, emphasizing the necessity for further research in this field to gain a better understanding of perceptions regarding AI in editing and proofreading. These conflicting views were highlighted by Eke [9] who investigated whether AI tools can be considered a threat to academic integrity and ethics. The study concluded that these tools can be both a great risk to academic integrity and a great opportunity, based on the responsible use of the tools and the unified efforts of all stakeholders to achieve and ensure this responsible use.

#### 4.4 The future of AI

# 4.4.1 Predictions for the development of editing/proofreading AI tools

Respondents predicted the development of AI tools in the future to become more independent, available, accurate, and sophisticated. They reported some prospective advancements, as follows:

- 1. "I believe AI tools will keep on developing and increasing in number, becoming available to everyone for free, and becoming more intelligent and more accurate than the current versions" (P1, Ph.D.).
- 2. "I think it will go miles ahead in no time, especially in this profession" (P4, B.A.).
- 3. "I guess they will keep improving and become more efficient and 'human-like' in editing" (P5, B.A.).
- 4. "To be an add-in tool in word documents, pdfs, and any other app, offline and online, where I can edit text. To be more accurate. To detect conflicting ideas in the same article. To suggest better arrangement of ideas or paragraphs" (P6, B.A.).
- "They will keep evolving and improving; for example, The Chicago Manual of Style is now integrated with PerfectIt" (P8. B.A.).
- 6. "It will be more developed and faster. It will do complex tasks. It will be automatic, there will be no need to give it directions to work right" (P14, Ph.D.).

Other responses were divided between whether these tools will replace humans. Table 3 shows the contradictory predictions on this point.

This contradiction shows that the future is not clear to professional editors and proofreaders, but the majority have cautious optimism regarding the future of Al tools. Dergaa et al. [8] have similar concerns about the prospect of Al. They believe that Al can become more advanced in the future, and though this advancement will not cause total replacement of humans, at least any time soon, it can significantly limit their contributions.

Table 3 Contradictory predictions of AI for editors/proofreaders

Potential for AI to replace human editing Al as an aid, not replacement 1. "I see it replacing the human factor for at least the light copyedit-1. "Nothing major. The tools will get more accurate, but there always ing processes" (P2, B.A.) will be a need for a human behind it" (P3, B.A.) 2. "I think that a number of corporates will do without the 'human' 2. "It will be used as an assistive tool of course amid ongoing technoelement soon" (P7, B.A.) logical advancement. It also could be more advanced, but it would 3. "I bet we may no longer need the human factor" (P11, B.A.) never be perfect or even errorless" (P9, M.A.) 4. "They will be more efficient than us human editors and they will 3. "It will help in many aspects but I do not think it will replace human be faster and cheaper too" (P17, Ph.D.) work" (P10, M.A.) 4. "The future might see a combination of AI tools and human editing becoming the norm. I don't think AI tools can fully replace humans" (P12, B.A.)



# 4.4.2 Al: an opportunity or a threat?

Responses here were also varied, which indicates the need for continuous observations on how editors/proofreaders perceive AI tools and their use in the profession. The first categorized responses can be seen as positive regarding AI and hence perceive it as a mere opportunity for use or seeking the acquisition of more skills:

- 1. "Currently, these tools are considered an opportunity, and if seen as a threat, we shall equip ourselves with other experiences like journalism, TV/Radio editing, and others" (P2, B.A.).
- "Opportunity. They save time which allows us to work more or finish faster and go have a life:D" (P3, B.A.).
- 3. "Yes. I think the smartest of us would be investing nowadays in understanding these tools well and developing skills that would give them an edge in handling these tools and using these for their own benefit. It's time we befriend our enemy, if I can call them enemies" (P4, B.A.).
- 4. "Until now, they are an opportunity that editors should take advantage of to help them refine their work in less time and help reduce the margin of errors and seek error-free work" (P6, B.A.).
- 5. "They are an opportunity for editors/proofreaders to become more productive and to save time" (P12, B.A.).
- 6. "I think AI tools present an opportunity. They offer several advantages, but they cannot replace the human role" (P13, M.A.).

Others had mixed opinions on AI and see it as both an opportunity and a threat:

- 1. "I think they are both! They are a great opportunity due to the wide capabilities they may offer which will make the work faster, more accurate, and more aligned with the client's expectations. However, there might come a time when these tools become intelligent enough to do all the work. Today's version of AI tools, for example, are excellent in detecting inconsistencies and fixing the mechanics of a text, but they are not very good with understanding the context and the overall idea of the text. However, who knows what tomorrow may bring!" (P1, Ph.D.).
- 2. "Both. They can help editors in many ways like I previously explained in the second question. On the other hand, they can give an edge/advantage to newcomers to the field of editing/proofreading where they can catch up to or even compete with experienced editors, maybe at a lower price, creating an "unfair" level playing field in my opinion" (P5, B.A.).
- 3. "They can be both. Despite their limitations, Al tools help editors/proofreaders improve their quality and productivity. On the other hand, some publishers and service providers may choose to use these tools as a replacement for human editors/proofreaders for reasons related to business needs and budget. However, a sophisticated tool that can completely replace human editors/proofreaders does not exist yet" (P8, B.A.).
- 4. "It depends on the degree of reliance and the editor's skill. As well as this, So, if an editor simply uses it as an assistive tool, then AI will not pose a threat and vice versa" (P9, M.A.).
- 5. "It can be both, an advantage if used by the editor for assistance and a disadvantage if used by others as a replacement for editing" (P10, M.A.).
- 6. "Al tools are an opportunity as they enhance productivity, but careful human supervision is crucial to maintain quality and appropriateness" (P15, Ph.D.)

A dim future for editors/proofreaders was reported by two respondents who predicted the replacement of humans with AI tools, "For now, they are an opportunity, but probably in the future when they are more advanced, they may replace human editors/proofreaders" (P14, Ph.D.) and "They can help save time and fix many errors, but they will replace humans someday" (P17, Ph.D.).

The analysis of the responses regarding AI for editors and proofreaders shows generally mixed outcomes, with a range of both positive and negative perspectives. Some responses highlight the opportunities and benefits that AI tools can bring, such as increased efficiency, time-saving, and improved productivity. Others express concerns about potential threats, such as the possibility of AI replacing human editors, ethical considerations, and the need for continued human involvement in the editing process. Overall, the attitudes toward AI tools for editing and proofreading vary among the respondents, reflecting a nuanced view of the technology's impact on the field.



#### 5 Conclusion

This study aimed to explore how editors and proofreaders perceive AI tools, considering both their advantages and potential drawbacks. It sought to answer the primary question: What are the perceptions of professional editors and proofreaders toward the use of AI tools in editing and proofreading? To address this primary research question, a series of sub-questions were investigated from the perspective of professional editors and proofreaders.

The first question focused on the primary perceived benefits of using AI tools among editors and proofreaders. The analysis of the related responses revealed that the participating editors and proofreaders reported positive aspects that fell into two main categories: time-saving and enhanced quality and productivity.

The second question aimed to investigate the challenges and limitations of using AI tools among editors and proofreaders. Despite the previously reported benefits, participants indicated that the use of AI tools can be challenging due to quality issues related to incorrect responses, a potential overreliance on the tools leading to a decrease in the required skills for editors and proofreaders, ethical concerns related to cheating, and the high cost associated with many of these AI tools.

The third set of questions explored participants' perspectives on the future of AI for editors and proofreaders. Despite their consensus on the future development of AI becoming more sophisticated and capable, their views on the possibility of AI replacing humans varied. While some participants rejected the idea of AI taking over their jobs, others perceived AI as a potential threat that could operate independently without human intervention. The majority of the participants agreed, however, that AI will witness significant developments and this will have a notable impact on the profession.

In conclusion, the majority of the study participants were found to use AI tools in editing and proofreading. Grammarly was reported to be the most used tool, followed by ChatGPT and PerfectIt. The study participants agreed on some strengths and weaknesses of using AI tools in editing and proofreading. However, they were divided regarding the threats and opportunities of using AI whether at present or in the future. These contradictory results show that attitudes toward AI tools in editing and proofreading exhibit significant variability among respondents, reflecting a complex perspective on the technology's influence on the field. Hence, there is a need for further studies to investigate attitudes toward AI.

These findings align with previous research in the same field and educational and academic domains. These studies have highlighted the potential positive impacts of specific AI tools, such as ChatGPT and Wordvice, which can assist in editing and producing text almost as effectively as humans. However, prior research has also cautioned users about the risks of cheating, plagiarism, and relying on possibly fabricated AI-generated information, which resonates with the results of the current study as well.

This study has its limitations. The small sample size and the focus on a specific editorial context may restrict the extent to which its findings can be applied to other contexts. Future research can involve a more diverse sample of participants from various editorial contexts to broaden the applicability of the findings and foster a more comprehensive understanding of the influence of AI tools on editing and proofreading. Additionally, it is worth noting that this study did not explore the viewpoints of company owners and clients, which could be needed for obtaining a complete understanding of human perceptions regarding AI integration. Lastly, there is a need to explore the perceptions of other professionals in other fields to have a more complete view of AI technology and how to use it to the best of humanity.

Author contributions All authors listed have significantly contributed to the investigation, development and writing of this article.

Data availability Data is available on request.

## **Declarations**

Competing interests The authors declare no competing interests.

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#### References

- 1. Aherne M. Copy-editing and proofreading. London: Publishing Training Centre; 2016.
- 2. Altmäe S, Sola-Leyva A, Salumets A. Artificial intelligence in scientific writing: a friend or a foe? Reprod Biomed Online. 2023;47(1):3–9. https://doi.org/10.1016/j.rbmo.2023.04.009.
- 3. Aljohani RA. Teachers and students' perceptions on the impact of artificial intelligence on English language learning in Saudi Arabia. J Appl Linguist Lang Res. 2021;8(1):36–47.
- 4. Allyn B. Microsoft's new AI chatbot has been saying some "crazy and unhinged things." NPR. 2023. https://www.npr.org/2023/03/02/1159895892/ai-microsoft-bing-chatbot. Accessed 2 Mar 2023.
- 5. Barrot JS. Using ChatGPT for second language writing: Pitfalls and potentials. Assess Writ. 2023. https://doi.org/10.1016/j.asw.2023.100745.
- Calonia J. Copy editing vs. Proofreading: What's the difference? Copy Editing vs. Proofreading: What's the Difference? Grammarly; Grammarly Blog. 2022. https://www.grammarly.com/blog/whats-the-difference-between-copy-editing-and-proofreading/. Accessed 6 Sep 2022.
- 7. Cheong BC. Granting legal personhood to artificial intelligence systems and traditional veil-piercing concepts to impose liability. SN Soc Sci. 2021. https://doi.org/10.2139/ssrn.3857504.
- 8. Dergaa I, Chamari K, Zmijewski P, Ben Saad H. From human writing to artificial intelligence generated text: examining the prospects and potential threats of ChatGPT in academic writing. Biol Sport. 2023;40(2):615–22. https://doi.org/10.5114/biolsport.2023.125623.
- 9. Eke DO. ChatGPT and the rise of generative AI: threat to academic integrity? J Resp Technol. 2023. https://doi.org/10.1016/j.jrt.2023. 100060.
- 10. Gregersen E. ChatGPT. Encyclopedia Britannica. https://www.britannica.com/technology/ChatGPT. Accessed 28 Aug 2023.
- 11. Heintz K, Roh Y, Lee J. Comparing the accuracy and effectiveness of wordvice AI proofreader to two automated editing tools and human editors. Sci Edit. 2021;9(1):37–45. https://doi.org/10.6087/kcse.261.
- 12. Huang J, Tan M. The role of ChatGPT in scientific communication: writing better scientific review articles. Am J Cancer Res. 2023;13(4):1148–54.
- 13 Lin Z. Why and how to embrace Al such as ChatGPT in your academic life. R Soc Open Sci. 2023. https://doi.org/10.1098/rsos.230658.
- 14 Mohamed AM. Exploring the potential of an Al-based chatbot (ChatGPT) in enhancing english as a foreign language (EFL) teaching: perceptions of EFL faculty members. Ed Inf Technol. 2023. https://doi.org/10.1007/s10639-023-11917-z.
- 15. Özçelik NP. A comparative analysis of proofreading capabilities: language experts vs. chatGPT. In: Pekdang B, editor. International studies in educational sciences. Kızılay: Serüven Publishing; 2023. p. 147–61.
- Perkins M. Academic integrity considerations of Al large language models in the post-pandemic era: chatGPT and beyond. J Univ Teach. 2023;20(2):7–24.
- 17. Razack HIA, Mathew ST, Saad FFA, Alqahtani SA. Artificial intelligence-assisted tools for redefining the communication landscape of the scholarly world. Sci Edit. 2021;8(2):134–44. https://doi.org/10.6087/kcse.244.
- 18 Sharples M. Automated essay writing: an AIED opinion. Int J Artificial Intell Ed. 2022;32(4):1119–26. https://doi.org/10.1007/s40593-022-00300-7.
- 19. Schardt D. ChatGPT is amazing. But beware its hallucinations! Center for Science in the Public Interest.2023. https://www.cspinet.org/blog/chatgpt-amazing-beware-its-hallucinations. Accessed 20 Mar 2023.
- 20. Schreuder HT, Gregoire TG, Weyer JP. For what applications can probability and non-probability sampling be used? Environ Monit Assess. 2001;66:281–91.
- 21. Shoufan A. Exploring students' perceptions of ChatGPT: thematic analysis and follow-up survey. IEEE Access. 2023;11(2023):38805–18. https://doi.org/10.1109/ACCESS.2023.3268224.
- 22. Shin D. The effects of explainability and causability on perception, trust, and acceptance: implications for explainable Al. Int J Hum Comput Stud. 2021;146:102551. https://doi.org/10.1016/j.ijhcs.2020.102551.
- 23. Toosi A, Bottino AG, Saboury B, Siegel E, Rahmim A. A brief history of Al: how to prevent another winter (a critical review). PET clinics. 2021;16(4):449–69.

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