

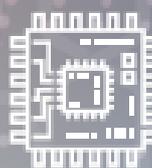
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Comparing Traditional Article Writing Processes and AI-Assisted Article Creation: A Comprehensive Analysis

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Abstract—This study compares the accessibility, engagement, and readability of human-written and AI-generated texts. We found that human writing, with its simpler tone and structure, attracts a wider audience by providing clear, contextual, and specific information in a natural style. In contrast, AI-generated text is more formal and structured, making it suitable for professional or academic contexts. While AI writing is concise and factually accurate, fixed and less engaging for a general audience. Based on these observations, we recommend that academic and research paper writers should use their own thinking to come up with research titles, write introductions, conduct literature reviews, and discuss the results. Once a draft version of article is ready, AI tools can be used to check grammar, enhance quality, and refine and polish the structure and logic of the paper. This combined approach employs the strengths of both human creativity and AI precision, resulting in a polished, ready-to-publish article.

Keywords— *Artificial Intelligence (AI), Traditional Human Writing, AI-Assisted Writing, Critical Thinking, Research Process, Writing Tools.*

1. INTRODUCTION

Writing good research papers brings many benefits to both the country of Uzbekistan and the scientific community. For the country, high-quality scientific research fosters the development of new technologies and innovations, which boost economic growth and competitiveness. It also improves education by providing students and educators with reliable and up-to-date information. Furthermore, a strong reputation for scientific achievements attracts foreign investments and enhances Uzbekistan's international status, opening doors for global collaboration and knowledge exchange. For the scientific community, well-written research articles help spread new knowledge and ideas, aiding other researchers in their work. They stimulate scientific discussions and debates, advancing the field as a whole. Publishing research papers also supports the professional growth and skill development of scientists and researchers.

2. RELATED WORKS

The advent of AI-assisted writing tools, powered by Natural Language Generation models (ChatGPT, Copilot, Consensus, Typeset), has significantly transformed the writing landscape.

These tools are designed to predict user needs and provide real-time suggestions, enhancing the writing process by making it more efficient and enjoyable. Users have reported that AI assistance helps diversify ideas while maintaining clarity and conciseness, without compromising their sense of ownership over the final product [1].

AI tools, such as chatbots and language models, have been integrated into various stages of manuscript preparation. While AI can be a valuable asset in gathering information and drafting manuscripts, it is not yet sufficient to replace human authors entirely, especially for high-quality publications in peer-reviewed journals. The human touch remains crucial for ensuring the depth and quality of scientific contributions [2].

Incorporating AI into academic writing can streamline the revision process, allowing researchers to focus on the novelty of their ideas. AI tools can suggest revisions and improve text quality, although transparency in distinguishing between human and machine-generated text is essential. This approach can mitigate concerns about AI's role in scientific writing by providing clear change-tracking [3].

The interaction between humans and AI in academic writing is complex and multifaceted. Studies have shown that iterative and interactive collaboration with AI tools leads to better writing outcomes compared to using AI merely as a supplementary source. This highlights the importance of understanding human-AI collaboration dynamics to enhance educational strategies [5].

AI-assisted language learning tools, such as ChatGPT, have shown promise in improving writing skills and motivation among students. These tools can enhance various aspects of writing, including organization, coherence, grammar, and vocabulary. However, there are concerns about over-reliance on AI and the need for ongoing development to ensure contextual accuracy and sustainability [6].

AI-based digital writing assistants can make writing scientific articles easier and more enjoyable for teachers, reducing errors and increasing efficiency and accuracy [7].

AI-assisted writing will revolutionize business communication, requiring significant changes to instruction and requiring students to develop AI literacy to overcome challenges and benefit from increased efficiency and idea generation [8].

The process of academic article writing traditionally involves multiple stages, from gathering research and drafting to revising and finalizing. Each stage requires significant time, effort, and expertise. However, the emergence of AI tools like ChatGPT, Copilot and Consensus has revolutionized this process. These tools promise to enhance productivity, improve grammar and style, and even generate content based on minimal input. Despite these advantages, there are concerns about reliance on AI, including reduced creativity, potential ethical issues, and a lack of personal critical engagement. This study aims to compare traditional and AI-assisted article writing processes, evaluating their impacts on time efficiency, content quality, and overall user experience.

AI-assisted writing tools significantly enhance the efficiency of the writing process. Traditional writing often involves extensive time spent on drafting and revising manuscripts. In contrast, AI tools can streamline these tasks by providing real-time suggestions and revisions. For instance, integrating large language models into the Manubot publishing ecosystem has shown to reduce the time researchers spend on crafting prose, allowing them to focus on the novelty of their ideas [3]. Similarly, AI tools like ChatGPT have been found to improve the writing process's efficiency by quickly generating and summarizing text.

The quality of writing is another critical factor in comparing traditional and AI-assisted writing. Traditional writing relies heavily on the author's expertise and meticulous revision processes. AI-assisted tools, however, can enhance text quality by providing diverse ideas and maintaining clarity and conciseness. Studies have shown that users appreciate the seamless assistance of AI in their writing, which helps diversify ideas while keeping the text clear and concise [9]. Additionally, AI tools can help to understanding complex academic concepts and suggest improvements, accordingly enhancing the overall quality of scholarly written texts.

User experience and enjoyment are essential components of the writing process. Traditional writing can be labor-intensive and sometimes monotonous. In contrast, AI-assisted writing tools have been found to make the process more enjoyable. Users have reported positive experiences when collaborating with AI tools, noting that these tools do not diminish their sense of ownership over the final product [3]. Furthermore, AI-assisted instruction has been shown to improve writing motivation among students, indicating a more engaging and enjoyable writing experience [6].

Despite the advantages, AI-assisted writing tools are not without their challenges. One significant concern is the potential for bias in AI-generated content. Although users in some studies did not experience bias, they expressed concerns about its possibility and the need for future tools to address this issue [1]. Additionally, the ethical implications of AI's role in academic writing, such as transparency in distinguishing between human- and machine-generated text, are crucial considerations. Ensuring fairness, accountability, and traceability in AI-assisted writing tools will be essential for building trust and promoting ethical usage.

This study aims to compare traditional and AI-assisted article writing processes, focusing on their impacts on time efficiency, content quality, and user experience. By

examining these aspects, we hope to highlight the benefits and challenges of integrating AI into academic writing.

3. METHODS

This analysis aims to compare the traditional article writing processes with AI-assisted article creation, focusing on aspects such as efficiency, quality, user experience, and potential biases. The methodology used in this research combines a comparative analysis and a case study approach [10-12]. Here's a detailed breakdown of the methods. In comparative analysis, the researcher compares traditional article-writing methods with AI-assisted writing across multiple stages: research, drafting, revising, and finalizing. The key metrics for comparison include efficiency, quality, ease of use, and creativity. Both quantitative (e.g., time taken) and qualitative (e.g., clarity) aspects are analyzed. Case Study Approach, Specific articles were produced using traditional writing methods and AI tools (ChatGPT, Copilot). Each stage of the article-writing process was documented and analyzed to observe how AI tools impacted the workflow. As an Evaluation Metrics, Efficiency: Time and effort required at each stage. Quality: Clarity, coherence, and adherence to academic standards. Ease of Use: User experience with AI tools compared to manual methods. Creativity and Critical Thinking: The extent to which ideas and arguments were original and well-developed. Tools and Techniques AI Tools: ChatGPT for content generation, Grammarly for grammar checking and editing. Manual Writing: Traditional methods involving research through books, articles, and human-led drafting and revisions.

This methodology ensures a comprehensive evaluation of both traditional and AI-assisted writing processes, highlighting their respective strengths and weaknesses.

4. RESULTS AND DISCUSSIONS

Below in the table 1. shown the results of comparison in term of time consumption while writing research article between the traditional method (using printed resources) and the modern method (using search engines and electronic resources) for academic writing.

Table 1. The comparison of time consumption between the traditional method (using printed resources) and the modern method (using search engines and electronic resources) for academic writing

Stage	Traditional Method, Printed Resources (Time)	Modern Method Search Engines & Electronic Resources (Time)	Time Saved (%)
Resource Identification	4 hours (visiting libraries, searching catalogues)	1 hour (search engines. Google Scholar, JSTOR)	75%
Accessing Materials	3 hours (borrowing/photo copying books and journals)	30 minutes (e-articles/books)	83%
Literature Review	8 hours (manual reading and note-taking)	3 hours (using citation managers, summaries)	63%
Referencing and Citation	2 hours (manual formatting)	30 minutes (automatic citation)	75%
Total	17 hours	5 hours	71%

Table 2 shows the results of the research article writing comparison, highlighting the time consumed by traditional and AI-assisted methods at each stage of article writing.

Table 2. The Comparison of time consumed by traditional and AI-assisted methods

Writing Stage	Traditional Method (Time)	AI-Assisted Method (Time)	Time Saved (%)
Research and Idea Development	6 hours	3 hours	50%
Drafting	8 hours	2 hours	75%
Revising and Editing	4 hours	1 hour	75%
Finalizing	2 hours	1 hour	50%
Total	20 hours	7 hours	65%

Case Study: Writing an Article on "Sensitivity Analysis Of User Behavior Of E-Government System"

This case study examines the time and effort required to write an article on the topic using traditional methods and AI-assisted methods. Both approaches were applied to the same task, and data on time consumption and quality were collected and analyzed.

Traditional Method Workflow of Article Writing

Academic writing an article using traditional methods involves a structured workflow that helps to organize thoughts and ensures the creation of a well-researched and coherent piece. By following this traditional workflow, we can ensure that our article is well-researched, clearly written, and effectively communicates our ideas to the audience.



Figure 1. Workflow diagram of writing article

1. Topic Selection and Research
 - Researcher must visit libraries and have to search printed books and journals on direction e-government in Uzbekistan.
 - At least researcher spent 6 hours (2 hours for searching catalogs, 4 hours reviewing materials).
 2. Drafting
 - Manually wrote the draft by organizing notes and ideas.
 - At least researcher spent 8 hours.
 3. Revising and Editing
 - Edited manually for grammar, style, and structure.
 - At least researcher spent 4 hours.
 4. Finalizing
 - Manually formatting the citations.
 - At least researcher spent 2 hours.
- Total spent Time is 20+ hours

AI-Assisted Method Workflow

The AI-assisted method for article writing follows the same process as the traditional method and leverages advanced technologies to streamline and enhance the writing process. By integrating AI tools into the traditional writing process, we can create high-quality articles more efficiently and effectively in a short time.

1. Topic Selection and Research

- Used AI tools (e.g., ChatGPT, Google Scholar,) to generate a list of barriers to e-government implementation and summarize relevant sources.

- At least researcher spent: 2 hours.

2. Drafting

- Generated initial draft using ChatGPT, Copilot prompts like "Write an introduction for an article on Sensitivity Analysis Of User Behavior Of E-Government System."

- Use Consensus, Typeset.

- At least researcher spent: 1.5 hours.

3. Revising and Editing

- Used Grammarly software for grammar and style improvements, and ChatGPT, Copilot, for rephrasing unclear sentences.

- At least researcher spent: 1 hour.

4. Finalizing

- Used Zotero or Mendeley for automated citation

- At least researcher spent: 30 minutes.

Total Time: 5 hours

Comparison of Human-Written and AI-Generated Texts

In order to write an Introduction, a researcher typically reads a wide range of materials to understand the broader problem and the current status of the ICT (Information and Communication Technology) area. The researcher examines recent developments, trends, and statistics in the ICT field to establish the context. This includes understanding advancements in technologies like the internet, cloud computing, mobile networks, and e-government systems, among others. The researcher looks at previous studies, articles, and reports to understand the state of the art in the ICT sector. This helps to identify methodologies used in previous research and to build a foundation for the current study and identifies the critical factors affecting the area of ICT under investigation, such as technological challenges, user behavior, infrastructure issues, and the role of government policies. Further by reviewing existing information, the researcher is able to justify the need for the current study.

Below, in Table 3, two types of Introduction sections for the article 'Sensitivity Analysis of User Behavior in E-Government Systems' are presented."

To generate the text, we used the ChatGPT (OpenAI) platform [9]. The Introduction section of the article was sourced from an article available at the following URL: <https://zenodo.org/records/14196899>. In the ChatGPT search window, the prompt used to generate the text was: 'Write an Introduction. Title: Sensitivity Analysis of User Behavior in the E-Government System of Uzbekistan.'

Table 3.Example: Human-Written and AI-Generated Texts (Introduction part)

Human writing	AI writing
<p>At present, information and communication technologies (ICT) play a significant role in shaping the development of the country and the competitiveness of its ICT enterprises. Uzbekistan is no exception, and the government has acknowledged the importance of ICT, actively investing in its development. As a result, the Internet has become a crucial tool for communication, education, and business in the country [1-3].</p> <p>As of January 2024, the population of Uzbekistan was 36.8 million people. This makes Uzbekistan the most populated country in Central Asia, accounting for nearly half of the region's total population. Number of internet users: 29.52 million in January 2024. The government is working to improve the country's internet infrastructure, including the implementation of high-speed broadband and mobile internet networks. The total bandwidth of connections to the international internet network has increased 2.6 times, resulting in a capacity increase to 3,200 Gbps. Internet speed in Uzbekistan has also improved, and internet service tariffs have been reduced by 25 percent compared to early 2021. Fiber-optic communication lines, totaling 170,000 kilometers in length, are also being actively laid.</p>	<p>E-Government systems have become a cornerstone of modern public administration, transforming how governments deliver services to citizens. By leveraging digital platforms, these systems aim to streamline processes, enhance transparency, and improve the overall efficiency of governance. However, the effectiveness of e-government systems largely depends on user adoption and behavior, making it essential to understand the factors that influence how individuals engage with these platforms.</p> <p>Sensitivity analysis serves as a valuable tool for examining the dynamic relationship between user behavior and system attributes. By analyzing how changes in specific variables—such as ease of use, service availability, security, and accessibility—affect user engagement, policymakers and developers can make informed decisions to improve system design and functionality. This approach is critical in identifying barriers to user participation and creating strategies to address them.</p> <p>In Uzbekistan, the development of e-government systems has been prioritized as part of the country's broader digital transformation agenda. With increasing investment in digital infrastructure and a growing emphasis on citizen-centric services, understanding user behavior is essential to achieving the intended outcomes of these initiatives. Despite</p>

<p>significant progress, challenges such as low digital literacy, concerns over data security, and limited access to reliable internet persist, potentially hindering widespread adoption.</p> <p>This study focuses on conducting a sensitivity analysis of user behavior within Uzbekistan's e-government systems. By identifying key factors that influence user engagement and satisfaction, the findings aim to provide actionable insights for improving the design and implementation of these systems, ultimately fostering greater trust, participation, and efficiency in public service delivery.</p>
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As we can see from the results, AI generated text has more words related to the article and provided information about how an Introduction should be written.

Regeneration of similar text

To test text regeneration based on an existing example, ChatGPT was used to generate the content. We clipped and uploaded the introduction part of the human-written text taken from a published article into ChatGPT and asked it to write similar content. The word query used was:

“Write similar content like the given human-written text in the Introduction part”.

Table 4.Regeneration of similar text

Human writing	AI-Generated written similar text
<p>At present, information and communication technologies (ICT) play a significant role in shaping the development of the country and the competitiveness of its ICT enterprises. Uzbekistan is no exception, and the government has acknowledged the importance of ICT, actively investing in its development. As a result, the Internet has become a crucial tool for communication, education, and business in the country [1-3].</p> <p>As of January 2024, the population of</p>	<p>Currently, information and communication technologies (ICT) are pivotal in shaping a country's development and enhancing the competitiveness of its ICT industry. Uzbekistan, like many other nations, recognizes the transformative power of ICT and has made substantial investments in its growth. This has led to the internet becoming an essential tool for communication, education, and business across the country.</p> <p>As of January 2024, Uzbekistan's population stands at 36.8 million, making it the most</p>

Uzbekistan was 36.8 million people. This makes Uzbekistan the most populated country in Central Asia, accounting for nearly half of the region's total population. Number of internet users: 29.52 million in January 2024. The government is working to improve the country's internet infrastructure, including the implementation of high-speed broadband and mobile internet networks. The total bandwidth of connections to the international internet network has increased 2.6 times, resulting in a capacity increase to 3,200 Gbps. Internet speed in Uzbekistan has also improved, and internet service tariffs have been reduced by 25 percent compared to early 2021. Fiber-optic communication lines, totaling 170,000 kilometers in length, are also being actively laid.	populous country in Central Asia, accounting for almost half of the region's population. The number of internet users reached 29.52 million by January 2024. The government has been focused on enhancing the country's digital infrastructure, with efforts to deploy high-speed broadband and mobile internet networks. The total bandwidth for international internet connections has increased 2.6 times, expanding capacity to 3,200 Gbps. In addition, internet speeds have improved, and service tariffs have dropped by 25% compared to early 2021. Moreover, the country is actively expanding its fiber-optic network, now totaling 170,000 kilometers in length.
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The results indicate that AI-generated text follows a logical and logical sequence, similar to human writing, and maintains high quality. This suggests that AI can be a valuable tool for generating text, especially when used to organize and enhance the quality and logic of a human-written article. By uploading a draft written by a person, AI can assist in refining its structure and logics effectively.

Comparison of the results

The comparison of human-written and AI-generated texts highlights differences and similarities in terms of clarity, understanding, quality, and other relevant factors. These metrics will be used to evaluate texts written by humans and those generated using AI.

Table 5. Evaluation texts written by humans and those generated using AI

Criteria	Human-Written Text	AI-Generated Text	Analysis
Clarity	Clear and straightforward, using simple and direct language for	Clear but slightly more formal, which could be harder for a	Both texts are clear, but the human-written text is simpler and more accessible. The AI-

	a broad audience.	general audience to understand without prior knowledge.	generated text is still clear but uses a more formal style.
Understandability	Easily understandable with a direct presentation of facts.	Slightly more formal and structured, making it less approachable for a general audience.	The human-written text is easier to understand for a wide audience, while the AI-generated text is slightly more formal and academic.
Quality	High quality with specific details and concrete examples, including numbers, facts, and relevant context.	Also high quality, but the language is slightly more formal and structured.	Both texts are high quality, but the human-written version includes more contextual richness, which adds depth. The AI-generated version is more neutral in tone.
Ease of Reading	Very easy to read and understand due to simple sentence structures and a conversational tone.	Requires more focus due to its formal phrasing and compact sentence structure.	The human-written text is much easier to read and understand, while the AI-generated text might require more attention and focus.

The results show that the human-written text is simpler, more accessible, and easier to understand for a wide audience, with contextual richness that adds depth, making it more engaging. On the other hand, the AI-generated text is clear, formal, and neutral in tone, suited for academic contexts but may require more attention and focus to read.

CONCLUSION

After analyzing the results, we found that human writing is more accessible, engaging, and understandable, with a simpler tone and structure that appeals to a wider audience. It provides clear, contextual, and specific information in a more natural style. On the other hand, AI writing is more formal and structured, making it more suitable for professional or academic contexts. It is concise and factually accurate but can feel rigid and less engaging for a general audience.

Overall, the basic recommendation is that human-written text excels in clarity, engagement, and ease of reading, while AI-generated text is more formal and may be better suited for academic or policy-focused contexts.

Recommendations for academicians and research paper writers:

1. Based on human thinking, find a research article title.
2. Write the introduction and do literature review by yourself.
3. Use existing methodology to obtain the results.
4. Highlight the results and discuss them.
5. Finally, write the conclusion.

All the above-mentioned steps result in a draft version of a research article. After that, it is recommended to use AI to check grammar, improve quality, and refine and to polish the structure and logic of the paper. It is suggested to use different AI tools. After this process, we will get a ready-to-publish article.

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