Evaluating the Effectiveness of Generative AI Interfaces in Academic Writing

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ABSTRACT

Generative AI tools are becoming a part of schoolwork. The question is how well their design helps people to write academic papers. To find out, we asked 50 respondents, including students and professors, about how easy these AI tools are to use. We also asked how comfortable they feel using them. We asked how much they help with writing. We found that well-designed AI interfaces really do help users write faster. They help with choosing words. They help with structuring sentences clearly. Still, schools need to set guidelines. Students should use AI as a writing assistant. They should not lose their thinking.

Keywords - Generative AI, Academic Writing, Interface Usability, User Experience, Integrity

INTRODUCTION

Students are increasingly using Generative AI in academic writing. Many students use it to support their academic work. This study examines how GenAI affects students' writing, productivity, and learning. AI has become an important educational tool. It helps students express their ideas more clearly. GenAI helps students express their ideas clearly. It can improve students' grammar and sentence structure. This helps students who struggle with academic writing. GenAI can make writing papers easier and faster. However, overusing it may affect students' honesty, creativity, and critical thinking. Therefore, it is important to understand how GenAI affects students' writing.

LITERATURE REVIEW

AI chatbots are changing the way students learn and teachers teach, especially in language classes. [1] AI chatbots in education have become increasingly popular in recent years, especially for helping students learn and improve their academic writing. [4]

ChatGPT is becoming more popular in language education because it can help students learn and write. [8] AI tools have brought many benefits to education, especially in teaching and learning English. [16]

AI is being used in higher education. It examines different uses of generative AI, such as helping with literature reviews, creating content, improving language, checking plagiarism, analyzing data, and selecting journals. [10]

The results showed that AI scores were very similar to human grades, showing that AI can evaluate work accurately. [17] Generative AI tools like ChatGPT can help improve students' academic performance, support personalized learning, and make learning more engaging. [23]

Online platforms can affect students' storytelling skills and writing confidence. [2] AI tools like ChatGPT for academic writing focus on trust and how well they fit students' writing tasks. [3]

AI-generated feedback can help college students improve their academic writing. [5] AI tools help university students improve writing. This study compares AI tool users with method users to see how AI tools affect writing quality, motivation, and independence. [12]

The link between writing and AI shows how AI is used and how it changes writing in school and work. [20]

AI tools helped students improve grammar, vocabulary, and writing. [24] Students can get help from AI throughout the writing process, from planning to editing. [25]

These tools can help people with dyslexia write emails from a prompt. They can also help students complete assignments. [6] AI tools support writing, learning, and feedback. [13]

Students had more positive learning experiences when using GenAI tools. In addition, the tools empowered students to self-regulate their study pace, making learning more accessible to everyone. [14]

How AI chatbots and personalized learning can help international students succeed. There are big challenges, like privacy problems, language issues, and ethical dangers. [15]

AI can help students boost grades and spark more interest in schoolwork. [18]

AI applications like chatbots and art tools are becoming more common in everyday life. Their usefulness depends on how easy the interface is to use. [7] The use of generative AI tools like ChatGPT has grown quickly, along with AI tools that create images, videos, and animations. [21]

Generative AI in education has made prompt writing an important skill for students. [9]

Students have become accustomed to using AI chatbots to complete their writing assignments. Besides finding it useful, students have even said they enjoy the experience, which makes them use these tools. [11]

Generative AI helps in education, and students are usually willing to use it. [22]

AI writing works best when schools set rules and teachers and students know how to use it. [19]

METHODOLOGY

Research Design

This study uses a quantitative approach to examine how much Education students rely on GenAI when writing. It also examines their satisfaction with its use. Data were collected through questionnaires and interviews. The study focused on students' experiences and how GenAI helps them with their writing tasks.

Respondents

The research was conducted with 50 research students, thesis supervisors, and professors who have used generative AI tools like ChatGPT, Claude, Grammarly, and QuillBot for academic writing. They were selected because they are experts in their field and can provide valuable insights based on their personal experiences.

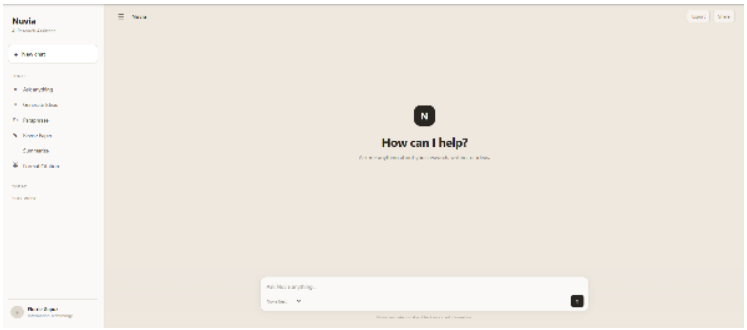
Sampling Methodology

The team used purposive sampling to recruit 50 participants, including research students, thesis supervisors, and professors with experience using generative AI for academic writing tasks. This selection was mainly motivated by the expectation of gaining comprehensive insights into the tools' practicality, the standards of generated content, and generative AI's efficiency in academic research and documentation.

Research Instrument

Researchers will survey 50 respondents (i.e., research students, and professors) about their perceptions and attitudes toward various features of generative AI tools for academic writing, such as usability, writing assistance, editing, interaction, and ethical considerations, using a questionnaire. They will be asked to use a 5-point Likert

scale for their responses. The survey results will help identify the capabilities and shortcomings of generative AI tools from academics' perspectives.



Users open Nuvia. See a clean dashboard that says, "How can I help?" The left sidebar offers tools such as Summarize, Paraphrase, and Format Citation. When a user types a greeting into the bar, Nuvia shows "Nuvia is thinking…" and then welcomes the user.

Data Gathering

A questionnaire was designed using Google Forms, and 50 participants completed it via Messenger and email. Later, all replies were collected and analyzed to determine how helpful generative AI has become, if at all, in writing an academic paper.

Statistical Treatment of Data

The data will be analyzed using percentages, weighted means, and the Likert scale. These methods will help determine what respondents think about generative AI in academic writing.

Percentage – will be utilized to determine the distribution of responses for each item in the survey questionnaire. This will help in understanding the frequency of specific ratings given by the respondents.

$$Percentage = \left(\frac{f}{n}\right) \times 100$$

Where:

f=frequency

n=number of responses

The weighted mean will be computed for Likert scale items. Each response option will be given a weight, and the average degree of agreement or satisfaction with certain assertions will be found by computing the weighted mean.

$$W = \frac{\sum fx}{n}$$

f=frequency

x=assigned weight/rating option

∑fx = sum of the products of frequency by weight

n = total number of responses

Likert Scale – The study will assess respondents' levels of agreement or satisfaction with different statements or inquiries related to generative AI interfaces using the Likert scale.

Table 3.1. Likert Rating Scale

Verbal Interception	Scale	Range
Excellent	5	4.50 – 5.00
Very Good	4	3.50 – 4.49
Good	3	2.50 – 3.49
Poor	2	1.50 – 2.49
Very Poor	1	1.00 – 1.49

RESULTS

In this chapter, we delve into the results and discussions derived from a comprehensive evaluation of the study titled "Evaluating Effectiveness of Generative AI Interfaces on Academic Writing," aiming to enhance user experience and writing efficiency through an interface-centric design approach.

Respondent Demographics

Table II shows who took part in the study. Having a good mix of different participants helps us get a complete, well-rounded picture of how people use generative AI tools for academic writing.

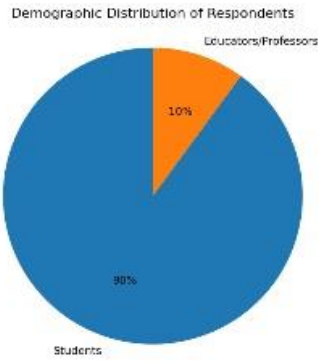


Figure 1 - Demographic Distribution of Respondents

Evaluation Results

Table III breaks down the test scores. Overall, respondents gave very positive feedback, with scores averaging between 4.32 and 4.38. Every category—usability, user comfort, and writing help—earned an 'Excellent' rating. Simply put, people find generative AI easy to use, clear, and very useful for completing academic writing faster and better.

Table 3.3. Evaluation of Respondents on Generative AI Interfaces

Criteria	Weighted Mean	Interpretation
Interface Usability & Ease of Use	4	Very Good
User Comfort	4	Very Good
Writing Assistance	4	Very Good

Ease of Use	4	Very Good
Effectiveness	4	Very Good
Satisfaction	4	Very Good
Overall	**4**	**Very Good**

CONCLUSION

A paper published shows that generative ai tools can aid students and academic writers alike by streamlining their work to achieve greater results faster. Out of a sample of 50 individuals, the majority felt ai to be a simple, useful, and efficient tool. These can, in fact, lead students to make use of proper grammar, come up with good ideas, and form clear language. Still, it should be recognized that if one relies on ai excessively, it will likely have impact upon that person's self-thinking, creativity, and integrity within academic endeavors. In light of this, ai is best utilized as a companion and assistant only, while at the same time students and researchers make use of their own minds, capabilities and concepts.

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