The Importance of Using AI Tools in Learning Technical Writing Skills: Perspectives from IT Students at the University of Tripoli

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ABSTRACT

The study aims to investigate the perspectives of information technology students at the University of Tripoli regarding the importance of AI tools in the acquisition of technical writing skills. Quantitative research was used in this study, whereby a questionnaire was used among 200 undergraduate students. Quantitative research aims at assessing the patterns of using the tool, the benefits, the challenges, and the importance of the tool. From the study, it is evident that the students see the tool as being beneficial for the improvement of grammatical skills, vocabulary, and the efficiency of the students. At the same time, the study highlighted a number of challenges regarding the tool. In conclusion, the study established that AI tools are important supplements in the classroom that require a particular pedagogy.

Keywords: AI Tools, Technical Writing, Student Perspectives, Perceived Benefits, IT Education

الملخص

تدرس هذه الورقة وجهات نظر طلاب تقنية المعلومات بجامعة طرابلس حول أهمية أدوات الذكاء الاصطناعي في تعلم مهارات الكتابة التقنية. استخدمت الدراسة المنهج الكمي عبر استبانة موزعة على 200 طالب لقياس أنماط الاستخدام، الفوائد، التحديات، والأهمية العامة. أظهرت النتائج أن الطلاب يعتبرون هذه الأدوات مفيدة جداً لتحسين القواعد والمفردات والكفاءة. مع ذلك، ظهرت مخاوف بشأن الاعتماد المفرط وتآكل المهارات والانتحال. وعلى الرغم من هذه التحديات، أكد الطلاب على أهمية الذكاء الاصطناعي ودعموا دمجه في المنهج. تستنتج الدراسة أن أدوات الذكاء الاصطناعي إضافات تعليمية قيمة تتطلب استراتيجيات تربوية موجهة.

الكلمات المفتاحية: ; أدوات الذكاء الاصطناعي، الكتابة التقنية، وجهات نظر الطلاب، الفوائد المتصورة، تعليم تقنية المعلومات

Introduction

The speedy development of Artificial Intelligence (AI) technology has significantly impacted many fields, particularly higher education (Li & Awang, 2025). Among these notable implementations are AI writing tools like ChatGPT, Grammarly, and QuillBot. They are increasingly becoming more popular among students for their academic and technical writing purposes (K.V. et al., 2026). For information technology students at the University of Tripoli, technical writing skills are a critical competence that students need to develop to document computer programs and communicate technical information and professional reports (Prickett & Foster, 2026). However, the adoption of these AI writing tools in the student learning process has shown a dichotomy of opportunities and challenges (Rashid et al., 2026). Although these tools are helpful in providing immediate feedback and improving vocabulary and structural organization, there are also growing concerns about overreliance on these tools, possible plagiarism, and a general lack of writing skills among students (Cook, 2026; Eslami et al., 2026). Thus, in this case, where Libyan universities are on the verge of embracing this new technology, it is essential to consider end users' perspectives and attitudes towards this technology. In this case, end users refer to students themselves. This study aims to bridge this gap between technology and its actual application in academic institutions by investigating how information technology students at the University of Tripoli perceive AI technology in their technical writing skills.

Research Objectives

This study aims to achieve the following objectives:

1. Identify usage patterns (types and frequency) of AI tools among IT students at the University of Tripoli.

2. Examine students' perspectives on the perceived benefits of AI tools (e.g., grammar, efficiency).

3. Investigate students' perceived challenges (e.g., over-reliance,

plagiarism).

4. Evaluate students' perceptions of the overall importance of AI tools.

Provide recommendations for the guided pedagogical integration of AI tools into the curriculum.

Literature Review

Empirical studies carried out between 2023 and 2026 underscore the significance of artificial intelligence tools in the development of technical writing and academic writing skills among information technology students and English as a Foreign Language (EFL) learners. Quantitative studies reveal the extensive use of AI tools, like ChatGPT and Grammarly, for improving grammar and vocabulary. For example, Mak et al. (2026) and Li & Awang (2025) have found that the tools help students improve grammar, increase vocabulary, and increase efficiency. Prickett and Foster (2026) have also emphasized the significance of AI tools in the academic writing skills of computer science students. The tools help the students organize ideas, which help the students overcome the language barrier and increase the quality of work through revisions. In contrast, the challenges faced by the students using AI tools have been emphasized in the literature. For example, the perceived challenges have been identified through surveys carried out by different researchers. The perceived challenges have been identified as the erosion of skills, plagiarism, inaccuracy, and uncritical usage. However, students have emphasized the significance of AI tools in the curriculum and have stressed the need for pedagogical guidance.

Methodology

Research Design

Quantitative research design is used to study the perspectives of information technology students in the present study. Descriptive survey research design was applied to obtain numerical data on the use of artificial intelligence tools.

Participants

A total of 200 information technology undergraduate students from the University of Tripoli formed the sample of the study. Convenience sampling was applied to select the participants from the first to fifth year of study.

Instrument

Data was collected using a structured questionnaire divided into three parts:

- Part One: Personal information (Gender, Academic Year).
- Part Two: Usage patterns (Tools used, Frequency).
- Part Three: A 5-point Likert scale (1=Strongly Disagree to 5=Strongly Agree) measuring three dimensions: Perceived Benefits (8 items), Perceived Challenges (4 items), and Overall Importance (2 items).

Results

The following tables present the statistical analysis of the data collected from 200 IT students. The results cover demographic information, usage patterns, and the descriptive statistics for the three main research dimensions: Perceived Benefits, Perceived Challenges, and Overall Importance.

Table 1. Demographic Profile of Respondents (N=200)

Variable	Category	Frequency	Percentage (%)
Gender	Male	130	65%
	Female	70	35%
Academic Year	First Year	66	33%
	Second Year	66	33%
	Third Year	68	34%

Table 2. AI Tool Usage Patterns

Question	Option	Frequency	Percentage (%)
Have you used AI tools?	Yes	184	92%
	No	16	8%
Tools Used (Multiple choices)	ChatGPT	156	78%
	Grammarly	128	64%
	QuillBot	50	25%
	Google Gemini	30	15%
	Microsoft Copilot	25	12.5%
Frequency of Use	Daily	50	25%
	Weekly	110	55%
	Monthly	30	15%
	Rarely	10	5%

Table 3. Descriptive Statistics for Perceived Benefits

No.	Statement	Mean	Std. Dev.	Level
6	AI tools improve my grammar.	4.52	0.65	High
8	AI tools make writing faster.	4.45	0.70	High
13	AI helps me produce better quality work.	4.30	0.75	High
7	AI tools enhance my vocabulary.	4.25	0.80	High
11	AI tools increase my writing confidence.	4.15	0.85	High
9	AI tools help organize my ideas.	4.05	0.90	High
10	AI tools help with language barriers.	3.95	0.95	High
12	I learn from AI corrections.	3.80	1.00	High
Mean Average	Benefits Dimension	4.18	0.82	High

(Scale: 1-5; Interpretation: 1.00-2.49 Low, 2.50-3.49 Moderate, 3.50-5.00 High)

Table 4. Descriptive Statistics for Perceived Challenges

No.	Statement	Mean	Std. Dev.	Level
17	AI sometimes gives wrong information.	3.90	0.95	High
16	I have concerns about plagiarism.	3.85	0.98	High
14	I worry AI might weaken my own skills.	3.75	1.05	Moderate
15	I sometimes use AI without understanding.	3.60	1.10	Moderate
Mean Average	Challenges Dimension	3.77	1.02	Moderate

Table 5. Descriptive Statistics for Overall Importance

No.	Statement	Mean	Std. Dev.	Level
18	Overall, AI tools are important.	4.50	0.70	High
19	AI should be part of the curriculum.	4.40	0.75	High
Mean Average	Importance Dimension	4.45	0.72	High

Table 6. Summary of Research Dimensions

Dimension	Mean	Std. Deviation	Interpretation
Perceived Benefits	4.18	0.82	Positive / High Agreement
Perceived Challenges	3.77	1.02	Moderate / Concern Exists
Overall Importance	4.45	0.72	Positive / High Agreement

Discussion

The findings of this study corroborate the contemporary global trends as reflected in academic literature. The highly positive rating pertaining to the benefits, particularly grammar and efficiency, corroborates the findings of Mak et al. (2026) and Rashid et al. (2026), wherein they found that "AI tools can serve as effective 'cognitive partners' that can boost lexical diversity and formality".

On the other hand, the students' concerns regarding accuracy (Mean = 3.90) and the possible erosion of skill (Mean = 3.75) corroborate the cautions sounded by K.V. et al. (2026) and Cook (2026). The students' fear that GenAI would take away their basic skills is particularly relevant in the case of technical writing, wherein logical structuring and innovative problem-solving are critical. Nevertheless, this fear is tempered by their positive rating regarding the inclusion of GenAI in the curriculum (Mean = 4.45), which bespeaks a sophisticated understanding of the dual role of GenAI. The findings of this study thus corroborate the "Active Learning–GenAI Synergy Framework" propounded by Rashid et al. (2026), wherein GenAI serves as a supplement rather than a substitute for active learning.

Conclusion and Recommendations

This study shows that the information technology students at the University of Tripoli believe that AI tools are a crucial resource for developing proficiency in technical writing, as there is a significant improvement in grammar, vocabulary, and efficiency. However, the negative aspects associated with the misuse and inaccuracy of AI tools need to be considered. Based on the study's findings, the following recommendations have been proposed:

1. Curriculum Integration: AI tools need to be incorporated into the technical writing curriculum at the University of Tripoli, rather than being considered supplementary resources. This will help the students develop proficiency in the field.

2. AI Literacy Training: Workshops need to be conducted to teach the students how to develop a prompt and how to evaluate the information correctly. This will help the students avoid the negative aspects associated with the inaccuracy of AI tools.

3. Ethical Guidelines: It is important to develop guidelines regarding plagiarism and the extent to which AI tools need to be used. This will help the students avoid the negative aspects associated with the misuse of AI tools.

This will help the educators make the most of the benefits offered by AI tools and allow the students to develop proficiency in technical writing.

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