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Students' Perception on The Use of ChatGPT in Research Writing

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A B S T R A C T

The integration of Artificial Intelligence in education has transformed how students engage with academic tasks, particularly in research writing. Among various AI applications, ChatGPT has emerged as a widely used language model that assists students in generating, organizing, and refining research writing process. This study investigates students' perceptions and behavioral intentions toward using ChatGPT in academic research writing, employing the Technology Acceptance Model as the analytical framework. A quantitative survey design was implemented involving 205 undergraduate students from the English Education Study Program at Tanjungpura University, representing the batch of 2020 to 2022. Data were collected through a 20 item online questionnaire using a five-point Likert scale and analyzed using descriptive statistics including means and standard deviations. The findings show consistently high perceptions across all constructs of the model, with Perceived Usefulness (M = 3.80, SD = 1.05), Perceived Ease of Use (M = 3.78, SD = 1.00), Attitude Toward Usage (M = 3.79, SD = 1.02), and Behavioral Intention (M = 3.96, SD = 0.97), all categorized as high. These results indicate that students find ChatGPT beneficial, easy to use, and supportive in enhancing writing quality and productivity. The results also suggest a strong intention to continue using AI tools for academic writing, reinforcing the relevance of the Technology Acceptance Model in the higher education context. This study concludes by emphasizing the importance of promoting ethical AI literacy and critical engagement to ensure that ChatGPT complements, rather than replaces, students' intellectual and creative efforts.

Keywords: *Students' Perception, ChatGPT, Research Writing, Artificial Intelligence.*
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INTRODUCTION

The emergence of Artificial Intelligence (AI) has significantly reshaped the global educational landscape, transforming how knowledge is delivered, assessed, and produced. AI technologies such as intelligent tutoring systems, automated feedback tools, and adaptive learning platforms have enhanced personalization, accessibility, and engagement in higher education (Kushwaha et al., 2024; Hasnida et al., 2023). These technologies not only automate routine academic tasks but also support learners' cognitive development by offering real-time feedback and individualized learning pathways. As a result, AI has become a catalyst for digital transformation in education, influencing both pedagogical practices and students' approaches to learning. Within this broader transformation, one of the most impactful innovations is ChatGPT (Chat Generative Pre-Trained Transformer), an AI-powered language model developed by OpenAI.

Since its release in late 2022, ChatGPT has attracted extensive attention for its ability to generate coherent and contextually relevant text while providing sophisticated linguistic support in academic contexts (Gupta, 2024). The tool assists students in generating content, summarizing complex ideas, paraphrasing sources, and organizing arguments, thereby improving productivity and writing quality (Halaweh, 2023). ChatGPT has been widely adopted as a writing assistant in higher education. It helps students construct logical arguments, develop counterpoints, and enhance the coherence of their research papers (Lingard, 2023). However, its growing presence has also sparked debates regarding originality, authorship, and academic integrity. Scholars have raised concerns about potential

plagiarism and overreliance on AI-generated text, emphasizing the need for ethical guidelines and academic literacy in AI use (Alqadi et al., 2023; Minkovska et al., 2024; Xu & Jumaat, 2024).

Previous studies have explored students and educators' acceptance of ChatGPT in different educational contexts. Salam (2024) found that students displayed positive attitudes toward ChatGPT in English writing courses, while Salam et al. (2024) also examined teachers' adoption of AI tools in research publication. Similarly, Launonen et al. (2024) reported that students perceived ChatGPT as highly useful and effective for academic writing tasks. Nonetheless, some users remain hesitant to adopt it because of ethical concerns, doubts about accuracy, or lack of need. Given these contrasting perspectives, further research is necessary to understand students' perceptions and behavioral intentions toward ChatGPT, particularly in research writing, which requires higher levels of critical thinking and academic rigor.

Therefore, this study investigates the perceptions of English Language Education students at Tanjungpura University regarding the use of ChatGPT in research writing. Guided by the Technology Acceptance Model (TAM), it examines four core variables: perceived usefulness, perceived ease of use, attitude toward usage, and behavioral intention to provide a comprehensive understanding of how AI-driven tools are integrated into academic research writing within the Indonesian higher education context.

Literature Review

ChatGPT in Writing

AI tools such as ChatGPT have shown significant potential in supporting academic writing by providing grammar correction, paraphrasing, and summarization features that enhance clarity, coherence, and overall writing confidence (Dong, 2023; Rukiati et al., 2023). Built on advanced natural language processing architectures, ChatGPT utilizes multi-layered attention mechanisms and contextual embeddings that allow it to process, understand, and generate human-like text across various academic domains (Koc, 2025; Lund et al., 2023; Teel et al., 2024). These technological capabilities extend beyond simple pattern recognition to include semantic understanding and pragmatic sensitivity, thereby making ChatGPT an increasingly relevant tool in higher education for addressing challenges in research writing.

The main functions of ChatGPT in research writing include proofreading, summarization, paraphrasing, and text generation. Its proofreading features can identify and correct grammatical, syntactic, and stylistic errors while aligning with disciplinary conventions (Algaraady & Mahyoob, 2023; Alsaweed & Aljebreen, 2024). Summarization algorithms integrate extractive and abstractive techniques to condense large volumes of academic texts into concise yet coherent representations (Sarraf & Abbaspour, 2023). Paraphrasing functions provide semantic fidelity while offering lexical and syntactic variations that reduce plagiarism risk and improve readability (Devi et al., 2025; Emran et al., 2024). Moreover, text generation capabilities assist students in developing arguments, integrating evidence, and formulating conclusions, thereby enhancing both the structure and intellectual quality of their academic writing (Rahman, 2025; Xu & Jumaat, 2024).

Despite these advantages, the use of ChatGPT in research writing entails both benefits and limitations. Empirical studies show that ChatGPT enhances productivity by reducing time spent on routine tasks and helps alleviate writing anxiety, thereby increasing student motivation and confidence (Ammari et al., 2025; Rahmayanti et al., 2025). It also fosters digital literacy and technological awareness as students engage critically with AI tools (Getchell et al., 2022; Warschauer et al., 2023). However, limitations remain, including the generation of inaccurate or biased information, inability to evaluate scholarly sources, and the risk of overreliance that may hinder the development of essential academic skills (Cotton et al., 2024; Thelma et al., 2024). For this reason, ChatGPT should be used as a supplementary tool that complements human oversight and critical engagement rather than replacing core academic abilities.

Research Writing in Higher Education in the context of EFL

Research writing is widely recognized as one of the most cognitively demanding tasks in higher education because it requires the integration of critical thinking, disciplinary knowledge, methodological understanding, and linguistic proficiency (Khalifa & Albadawy,

2024; Malik et al., 2024; Miah et al., 2024). For EFL students, these demands are intensified by challenges in constructing coherent arguments, maintaining thematic unity, synthesizing diverse sources, and adhering to academic integrity standards. Difficulties often emerge in plagiarism avoidance, where students struggle to distinguish between original contributions and borrowed ideas while mastering citation conventions (Oktafiandi et al., 2024).

Beyond linguistic concerns, students face organizational and metacognitive challenges in managing the recursive nature of research writing, which involves continuous movement between planning, drafting, revising, and editing (Sophomore Talle Vacalares et al., 2023; Tiwari, 2023). Argument construction requires the evaluation of evidence, integration of perspectives, recognition of counterarguments, and the development of original insights, while linguistic proficiency demands precise vocabulary, complex syntax, and discipline-specific register conventions (Setyani et al., 2023). These overlapping demands often overwhelm EFL students, particularly those with limited exposure to academic discourse communities, leading to anxiety, uncertainty, and difficulties in self-regulation. To address these difficulties, EFL students must develop essential research writing skills such as summarizing, paraphrasing, critical analysis, clarity of expression, and accurate citation management (Rahmani, 2023; Oktafiandi et al., 2024; Rezeki, 2018; Salam, 2024). Summarization requires distilling key ideas and aligning them with argumentative goals, while paraphrasing demands deep comprehension and rephrasing without distortion. Critical analysis remains central to evaluating methodological soundness and synthesizing perspectives into scholarly contributions. While AI tools like ChatGPT can assist in paraphrasing, proofreading, and improving clarity (Salam, 2024), their effective use depends on students' critical awareness and proper academic guidance. Ultimately, the mastery of research writing skills in higher education still relies on explicit instruction, iterative practice, and sustained engagement to foster academic rigor, originality, and ethical scholarship.

METHOD

Design and Sample

The research instrument was adapted from previously validated questionnaires in studies related to AI and ChatGPT in education (Alqadi et al., 2023; Hasanah & Nurcholis, 2024; Ngo, 2023). The questionnaire consisted of 20 closed-ended items divided into four constructs based on the Technology Acceptance Model (TAM): Perceived Usefulness, Perceived Ease of Use, Attitude Toward Usage, and Behavioral Intention. Each construct contained five statements measured on a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). To ensure the content validity of the instrument, three experts in educational technology and English language teaching reviewed the items for relevance, clarity, and alignment with the research objectives. A pilot test was conducted with 25 students outside the main study sample to refine wording and structure. The results of the reliability test indicated satisfactory internal consistency, with Cronbach's alpha coefficients of 0.86 for Perceived Usefulness, 0.84 for Perceived Ease of Use, 0.82 for Attitude Toward Usage, and 0.88 for Behavioral Intention. These coefficients confirm that the questionnaire was reliable for measuring students' perceptions of ChatGPT in research writing.

Data collection procedure

Data collection was conducted using an online survey distributed through Google Forms between March and April 2024. The link to the questionnaire was disseminated via class representatives and course lecturers to ensure a balanced distribution across academic batch. Respondents were informed of the study's purpose and assured of the confidentiality of their responses. Participation was voluntary, and the average completion time for the questionnaire was approximately 10 to 15 minutes. The use of an online platform facilitated efficient and accessible data collection, minimizing potential human error in data entry and processing (Raju & Harinarayana, 2016; Rudikowa et al., 2019).

Data analysis

Data analysis in this study employed descriptive statistical methods to simplify and interpret complex data in a clear and communicative manner (Morcillo, 2023; Taherdoost,

2020). The analysis consisted of three main components: frequencies and percentages, mean scores, and standard deviations. Frequencies and percentages were calculated to determine the number and proportion of respondents selecting each response option, providing an overview of response trends (S. Schneider & Stone, 2016). The mean score was computed using the formula =AVERAGE (range) in Microsoft Excel to determine the central tendency of students' perceptions. The interpretation of mean scores followed the criteria shown in Table 1.

Table 1 Mean value interpretation

Mean Score Range	Level of Perception
Less than 1.5	Very Low
1.5 – 2.5	Low
2.5 – 3.5	Moderate
3.5 – 4.5	High
Above 4.5	Very High

(Almohtadi & Aldarabah, 2021)

Standard deviation was calculated using the function =STDEV.S (range) in Microsoft Excel to measure variability and assess the consistency of responses across and within academic batch. A lower standard deviation indicated strong agreement among respondents, while a higher value suggested greater variation in perceptions. The descriptive analysis provided a comprehensive understanding of students' perceptions of ChatGPT's perceived usefulness, ease of use, attitude, and behavioral intention in research writing. These results offered empirical evidence supporting the Technology Acceptance Model framework in the context of AI-assisted academic writing practices.

FINDINGS AND DISCUSSION

This part will show the survey result. It was found that most students, especially the batch of 2021, demonstrated strong familiarity and confidence in using ChatGPT for academic purposes. Figure 1 shows the total of respondents each batch. The batch of 2021 represented the largest group of survey participants, with a total of 82 students (40%) reporting the use of ChatGPT as a writing tool, particularly in the context of research writing. This class was followed by the batch of 2022, which consisted of 67 students (32.7%), representing a significant portion of the total class population. Meanwhile, the batch of 2020, as the first batch to experience the technological transition, represents approximately half of their class population, with 56 students (27.3%) confirming their experience and proficiency in using ChatGPT for research purposes. These findings indicate that technology has become an increasingly familiar and accepted component of academic life, and that future investments in educational innovation are likely to continue to receive support and engagement from students.

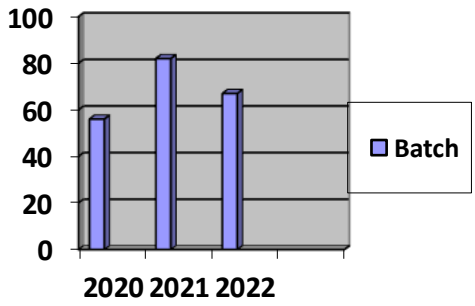

Figure 1 Total Respondents

The findings of this study indicate that students' perceptions of the use of ChatGPT in research writing are positive but varied, reflecting the complexity of individual experiences in interacting with this technology. Using the Technology Acceptance Model (TAM) framework, the analysis identified four main dimensions: "Perceived Usefulness," "Perceived Ease of Use," "Attitude Toward Usage," and "Behavioral Intention." Each of these indicators interacts with one another in shaping students' attitudes and intentions.

TAM variable each batch

The analysis of students' perceptions toward ChatGPT use in academic research writing across the three batch (2020, 2021, and 2022) reveals consistently high levels of acceptance in all dimensions of the Technology Acceptance Model (TAM). As shown in Table 2, the overall mean scores for each variable fall within the high category, demonstrating students' positive views of ChatGPT's usefulness, ease of use, and its integration into academic activities.

Table 2 Summary of TAM variables across all batches

TAM Variable	2020 (M)	2021 (M)	2022 (M)	Overall Mean	SD Range	Interpretation
Perceived Usefulness	3.76	3.75	3.89	**3.80**	0.96–1.11	High
Ease of Use	3.81	3.75	3.83	**3.80**	0.92–1.11	High
Attitude Toward Usage	3.81	3.74	3.83	**3.79**	0.94–1.13	High
Behavioral Intention	3.97	3.90	4.01	**3.96**	0.92–1.05	High

The aggregated results show that behavioral intention (M = 3.96) scored the highest among all variables, suggesting that students have strong willingness to continue using ChatGPT in research writing. Perceived usefulness (M = 3.80) and ease of use (M = 3.80) also received high ratings, indicating that students found ChatGPT both beneficial and user-friendly. Similarly, attitude toward usage (M = 3.79) remained positive across batch, reflecting students' overall comfort and confidence in integrating AI into their academic writing tasks. Minor variations in the mean values between batch illustrate a natural stabilization in technology adoption. The 2020 batch, as the first to experience the introduction of ChatGPT, showed enthusiastic adaptation and positive perceptions. The 2021 batch maintained similar acceptance levels, demonstrating sustained engagement even after the initial novelty of AI tools diminished. Meanwhile, the 2022 batch continued to report high acceptance, reflecting the normalization of ChatGPT use as an integral part of the academic writing process. Overall, the consistently high levels of perceived usefulness, ease of use, positive attitudes, and strong behavioral intentions confirm that the integration of ChatGPT into research writing has been both effective and sustainable. These results suggest that AI-assisted tools are no longer viewed as experimental innovations but as established components of the learning environment that enhance students' productivity and engagement in higher education.

To explore these findings further, each TAM construct was analyzed separately. The following sections discuss the item-level results for Perceived Usefulness, Ease of Use, Attitude Toward Usage, and Behavioral Intention to illustrate how students across different batches perceived and interacted with ChatGPT in academic research writing.

Perceived of Usefulness

The Perceived Usefulness Dimension measures students' perceptions of the functional benefits and practical value of ChatGPT in supporting their academic research writing activities. This construct measures the extent to which students believe that using ChatGPT can improve their research writing performance and productivity. Five specific items were developed to assess different aspects of perceived usefulness, ranging from technical writing assistance to overall writing quality improvement. Table 3 presents descriptive statistics for each item in the Perceived Usefulness Dimension for each batch year.

Table 3 Perceived of Usefulness of ChatGPT in Research Writing

Code	Item Statement	Batch Year	Mean	SD	Interpretation
Q1	I found ChatGPT useful in helping me summarize, proofread, and paraphrase the text in my research.	2020	3.65	0.95	High
		2021	3.81	1.09	High
		2022	4.0	0.96	High
Q2	ChatGPT support my research writing process effectively.	2020	3.67	1.24	High
		2021	3.70	0.96	High
		2022	3.9	1.02	High
Q3	Using ChatGPT can help to increase the productivity of my research.	2020	3.89	1.02	
		2021	3.82	0.97	High
		2022	4.0	0.83	High
Q4	By using ChatGPT, research writing can be completed more effectively.	2020	3.85	1.22	High
		2021	3.49	0.92	High
		2022	3.7	0.97	High
Q5		2020	3.76	1.11	High

Code	Item Statement	Batch Year	Mean	SD	Interpretation
	ChatGPT helped improve the quality of my research writing.	2021	3.92	0.88	High
		2022	4.0	0.89	High

The perceived usefulness of ChatGPT in research writing was consistently rated high across all student batches, reflecting a strong and growing appreciation for the tool's role in academic support. Students from the 2022 batch reported the highest levels of agreement with the statement that ChatGPT was useful in helping them summarize, proofread, and paraphrase their research texts. This suggests a positive trend in the familiarity and confidence of newer batches in using AI tools to enhance clarity and precision in writing. Similarly, students from all batches agreed that ChatGPT effectively supported their overall research writing process, with mean scores gradually increasing over time. This progression may reflect students' increasing skill and comfort in integrating AI assistance as a regular part of their academic workflow.

The perception that ChatGPT can improve research productivity and writing quality was also affirmed by all batches. Students in the 2022 batch consistently gave the highest ratings, particularly in statements related to productivity and quality improvement, indicating their strong confidence in the tool's contribution. Even in the slightly lower ratings from the 2020 and 2021 batches on certain items, such as completing research more effectively, the interpretation remains within the "high" category, showing general consistency in positive perceptions. The upward trend across items and batches underscores the growing institutional and pedagogical relevance of AI-assisted tools. Over time, ChatGPT has not only become more integrated into students' research practices but also perceived as a standard instrument to support both efficiency and quality in academic writing.

Ease of Use

The Perceived Ease of Use dimension evaluates the extent to which students find ChatGPT easy to understand and use in the context of academic research writing. This construct measures the level of ease that students experience when interacting with AI technology without requiring excessive mental effort. Five items were designed to assess different aspects of ease of use, which include aspects of learning, interface usability, usage control, and cognitive load. The following table presents descriptive statistics for each item in the perceived ease of use dimension for each batch year. These results show how intuitive and accessible ChatGPT is to university students in completing their research writing assignments.

Table 4 Perceived Ease of Use of ChatGPT in Research Writing

Code	Item Statement	Batch Year	Mean	SD	Interpretation
Q6	ChatGPT is easy to use for research writing tasks.	2020	3.72	1.11	High
		2021	3.92	0.88	High
		2022	4.0	0.89	High
Q7	Learning to use ChatGPT for research writing is easy for me	2020	3.93	1.11	High
		2021	3.83	1.00	High
		2022	3.9	1.03	High
Q8	The interface of ChatGPT is user-friendly for research writing purposes.	2020	3.85	1.11	High
		2021	3.81	0.84	High
		2022	3.6	0.93	High
Q9	I can easily get ChatGPT to do what I want in research writing.	2020	3.63	1.14	High
		2021	3.57	0.93	High
		2022	3.8	0.78	High
Q10	Using ChatGPT for research writing does not require a lot of mental effort.	2020	3.91	1.09	High
		2021	3.62	0.95	High
		2022	3.8	0.95	High

The perceived ease of use of ChatGPT for research writing was consistently rated high across all batches, indicating that students found the tool accessible and manageable in the context of academic tasks. The statement that ChatGPT is easy to use for research writing received increasingly high ratings from 2020 to 2022, with the most recent batch reaching the highest average score. This trend may reflect improvements in user familiarity or platform enhancements that make the tool more intuitive over time. Furthermore, students from all

batches reported that learning how to use ChatGPT was relatively easy, suggesting that the initial learning curve did not pose a significant barrier, even for those in earlier batches who may have had less exposure to AI-based tools at the time.

The user interface of ChatGPT was also seen as user-friendly, although the 2022 batch showed a slightly lower average score than their predecessors on this specific item, possibly reflecting higher expectations due to increased digital literacy. In terms of command execution, or the ability to get ChatGPT to perform specific writing-related tasks, students consistently reported a high level of ease, with the 2022 batch again rating slightly higher, suggesting improved proficiency or clearer task formulations. Importantly, the statement regarding mental effort required when using ChatGPT also yielded high scores across all batches, reinforcing the perception that the system is cognitively accessible. Altogether, these findings highlight that, students not only accept but are also comfortable navigating and utilizing ChatGPT for research writing with minimal strain, reinforcing its usability in academic environments.

Attitude Toward Usage

The Attitude Toward Use dimension assesses students' overall evaluative feelings and emotional responses toward using ChatGPT in their research writing activities. This construct measures the extent to which students have favorable or unfavorable attitudes about the incorporation of AI technologies into their academic writing process. Five items were developed to capture various aspects of the attitudinal response, including satisfaction, positive evaluation, enjoyment, and general disposition toward use. Table 5 presents descriptive statistics for each item in the Attitude Toward Use dimension for each batch. These results provide insight into students' emotional and evaluative responses to ChatGPT as research writing assistant.

Table 5 Attitude Toward Usage of ChatGPT in Research Writing

Code	Item Statement	Batch Year	Mean	SD	Interpretation
Q11	It's great to use ChatGPT to help with research writing.	2020	3.74	1.31	High
		2021	3.63	1.04	High
		2022	3.8	0.89	High
Q12	I am satisfied with my research writing assisted by ChatGPT.	2020	3.93	1.15	High
		2021	4.18	0.69	High
		2022	4.1	0.85	High
Q13	Using ChatGPT for research writing is a good idea.	2020	3.91	1.00	High
		2021	3.92	0.92	High
		2022	3.9	0.94	High
Q14	ChatGPT makes research writing more enjoyable.	2020	3.93	1.08	High
		2021	3.61	1.07	High
		2022	3.5	1.05	Moderate
Q15	I have a positive attitude toward using ChatGPT in research writing.	2020	3.76	1.15	High
		2021	3.74	0.93	High
		2022	3.8	0.93	High

In terms of attitude, students across all batches generally expressed a positive disposition toward using ChatGPT in research writing. Most items under this construct scored within the "high" interpretation range. The statement "It's great to use ChatGPT to help with research writing" was consistently rated positively, with a slight increase in the 2022 batch, indicating continued approval over time. Satisfaction with ChatGPT-assisted writing yielded one of the highest scores across all items, particularly for the 2021 batch, reflecting strong user contentment after gaining experience with the tool.

Similarly, the idea that using ChatGPT is a good strategy for research writing was consistently endorsed across years, indicating a shared agreement on the value it contributes to the academic writing process. However, the item related to enjoyment showed a slight decline in the 2022 batch, falling into the "moderate" category. This may suggest that as ChatGPT becomes a more regular part of the workflow, the sense of novelty and the associated enjoyment it initially offered may have slightly decreased. Nevertheless, overall attitudes

remain favorable, as reflected in the consistently high ratings for the general statement expressing a positive attitude toward its use in research writing.

Behavioral Intention

The Behavioral Intention category measures students' likelihood and willingness to continue using ChatGPT in future research writing activities. This construct assesses the extent to which students intend to adopt and maintain the use of AI technology in their academic writing practices based on their experiences and perceptions. Five items were designed to evaluate different aspects of behavioral intention, including specific functional benefits, output readability, cognitive enhancement, technological awareness, and overall usage preferences. The following table presents descriptive statistics for each item in the Behavioral Intent dimension for each batch. These results indicate students' commitment to future use and the long-term value they perceive from ChatGPT in the context of research writing.

Table 6 Behavioral Intention to Use ChatGPT in Research Writing

Code	Item Statement	Batch Year	Mean	SD	Interpretation
Q16	ChatGPT makes it easier for me to create support for thesis statements in writing research	2020	3.81	1.20	High
		2021	3.83	0.95	High
		2022	3.9	1.02	High
Q17	The writing produced by Chatgpt is easy to understand.	2020	3.80	1.14	High
		2021	3.50	0.97	Moderate
		2022	3.6	0.94	High
Q18	ChatGPT improved my critical thinking in building support in writing research.	2020	4.00	0.87	High
		2021	3.98	0.82	High
		2022	4.00	0.65	High
Q19	Using ChatGPT makes me aware of technological developments in assisting the research writing.	2020	4.11	1.04	High
		2021	4.06	1.00	High
		2022	4.3	0.83	High
Q20	It's great to use ChatGPT to help with research writing.	2020	4.11	0.96	High
		2021	4.15	0.91	High
		2022	4.2	0.95	High

In terms of behavioral intention, students across all batches consistently expressed strong agreement that ChatGPT supports their ability to construct arguments and thesis statements in research writing. This high level of endorsement suggests that the tool is not only seen as functional but also instrumental in organizing and supporting academic reasoning. The clarity of output generated by ChatGPT was rated slightly lower by the 2021 batch, entering a moderate range, which may reflect varied expectations regarding coherence or alignment with academic writing standards. Students also acknowledged that ChatGPT contributes to the development of their critical thinking, particularly in how they support arguments in writing.

Additionally, the tool appears to increase students' awareness of emerging technologies in research assistance. Notably, the statement indicating a general enthusiasm for using ChatGPT in academic writing received one of the highest scores across all batches, reinforcing the notion that ChatGPT is perceived not just as useful but as a welcomed and forward-looking aid in the research writing process. Overall, the analysis across the four key constructs of the Technology Acceptance Model reveals a consistently positive student perception of ChatGPT in the context of academic research writing.

Across all batches, students reported high levels of agreement with the usefulness and ease of ChatGPT, recognizing its contribution to enhancing writing quality, streamlining the research process, and reducing cognitive effort. Favorable attitudes were also evident, with students expressing satisfaction and general approval of integrating AI into their academic workflow, despite a slight dip in perceived enjoyment among the most recent batch. Furthermore, the consistently high ratings on behavioral intention suggest a strong likelihood of continued use, highlighting the tool's perceived relevance and long-term value in supporting academic research writing. These findings provide a strong basis for deeper reflection on how students interact with AI tools in their educational journey. This study demonstrate strong positive perceptions among students regarding ChatGPT's usefulness in

research writing, aligning with the Technology Acceptance Model (TAM) (Venkatesh, 2015). Students across all batches perceived ChatGPT as highly beneficial for summarizing, paraphrasing, and improving writing quality, reinforcing prior research on AI's role in enhancing academic productivity (Darwin et al., 2024; Khalifa & Albadawy, 2024).

The higher acceptance from the batch of 2022 suggests increasing familiarity with AI tools over time, supporting TAM's assertion that perceived usefulness drives adoption. However, minor variations in perceived effectiveness, particularly among the 2021 batch, may reflect initial skepticism or limitations in AI's contextual understanding, as noted by Cotton et al. (2024). Ease of use emerged as a critical factor in ChatGPT's adoption, with students consistently rating its interface as intuitive and its learning curve as manageable. These findings resonate with TAM's emphasis on usability as a predictor of technology acceptance. The batch of 2022 is higher ease-of-use scores align with Chen et al. (2022) observation that digital-native students adapt more quickly to AI tools. However, the slight decline in interface ratings among later batches suggests evolving expectations, possibly due to exposure to more sophisticated platforms (Alsaweed & Aljebreen, 2024). This underscores the need for continuous improvements in AI tool design to sustain user engagement.

Attitudinal responses revealed high satisfaction with ChatGPT, particularly in boosting confidence and efficiency in research writing. This supports Rahmayanti et al. (2025), findings that AI-assisted writing enhances student self-efficacy. However, the moderate decline in enjoyment scores among the batch of 2022 indicates a potential novelty effect, where initial enthusiasm wanes as AI becomes a routine tool (I. Schneider & Schwarz, 2017). Despite this, the overall positive attitude toward ChatGPT's integration suggests its alignment with academic goals, though concerns about over-reliance and critical thinking persist (Thelma et al., 2024).

Behavioral intention to continue using ChatGPT was notably high, particularly for tasks like thesis support and literature synthesis. This aligns with the Unified Theory of Acceptance and Use of Technology (UTAUT), which posits that performance expectancy influences long-term adoption (Venkatesh, 2015). However, variability in perceptions of output clarity highlights ongoing challenges in AI's reliability, as noted by Cheng et al. (2025). The emphasis on ChatGPT's role in fostering critical thinking suggests students view it as a supplementary tool rather than a replacement, reinforcing Rahmani (2023) argument for structured AI integration in pedagogy.

Implication and Limitation

The study's theoretical implications reinforce TAM in AI-education contexts, while also introducing the concept of a novelty-attrition curve in student engagement with emerging technologies. Practically, the findings suggest that educators should incorporate AI tools strategically, emphasizing critical evaluation and ethical use (Salam, 2024). Institutions must also develop AI literacy programs to address biases, accuracy, and responsible usage (Cheng et al., 2025; Cotton et al., 2024).

Furthermore, limitations of this study include potential batch-specific biases and reliance on self-reported data. Future research should explore longitudinal changes in student perceptions and cross-cultural comparisons to assess AI's global applicability in education (Lin et al., 2025; Uwosomah & Dooly, 2025). Additionally, experimental studies could further examine ChatGPT's impact on learning outcomes and critical thinking development. In summary, this study affirms ChatGPT's value as research writing aid, driven by its perceived usefulness and ease of use. However, sustainable integration requires addressing ethical concerns and fostering critical engagement to ensure AI complements, rather than replaces, human intellectual effort. These insights contribute to ongoing discussions on AI's role in higher education and provide a foundation for future research and policy development.

CONCLUSIONS

This study concludes that students across all batches demonstrated a consistently high level of acceptance toward ChatGPT for research writing, as reflected in the four dimensions of the Technology Acceptance Model. Perceived Usefulness and Ease of Use, both with an

overall mean of 3.80, indicate that students found ChatGPT beneficial, intuitive, and effective in enhancing productivity and writing quality. The Attitude Toward Usage dimension, with a mean of 3.79, reflects generally positive perceptions, although the sense of novelty appears to have declined as the tool became routine. Meanwhile, Behavioral Intention achieved the highest mean of 3.96, confirming strong willingness to continue using ChatGPT in academic writing. Collectively, these findings affirm that ChatGPT has been successfully integrated into students' academic practices, fostering efficiency and confidence in research writing. However, sustainable integration requires continuous emphasis on ethical use, critical engagement, and reflective learning to ensure that AI serves as a complementary aid rather than a substitute for human intellectual effort.

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