

UNDERGRADUATE STUDENTS' PERCEPTION ON USING CHATGPT FOR IDEA DEVELOPMENT IN ACADEMIC WRITING BASED ON TAM: A DESCRIPTIVE STUDY

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ABSTRACT

This study explores undergraduate students' perceptions of using ChatGPT to help develop ideas in academic writing, based on the Technology Acceptance Model (TAM). The research involved 23 fourth-semester students from the English Education Study Program at Universitas Tanjungpura who had completed a Paragraph Writing course. A descriptive quantitative method was used, and data were collected through a close-ended questionnaire referring to four TAM constructs: Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Attitude Toward Using (ATU), and Behavioral Intention to Use (BIU). The results showed that students viewed ChatGPT as a helpful and easy tool for generating, organizing, and improving their writing ideas. Most participants had a positive attitude toward ChatGPT and planned to use it again in the future. These findings are relevant to the TAM theory and confirm the importance of usefulness and ease of use in technology acceptance. Unlike previous studies that focused on general writing performance, this study highlights idea development as a key benefit. The findings suggest that ChatGPT is capable of supporting students in writing activities, but further research is needed to explore its long-term impact.

Keywords : ChatGPT, Idea Development, Academic Writing, Students Perceptions, Technology Acceptance Model (TAM), EFL

A. Introduction

Writing is a fundamental component of English language learning, particularly within English as a Foreign Language (EFL) contexts, where it serves as both a linguistic and

cognitive process essential for students' academic and communicative development. It requires a series of deliberate mental activities in which writers plan, organize, translate, and review ideas to communicate meaning effectively

(Siepmann et al., 2022; Tompkins, 2020). However, for many EFL learners, writing remains a complex skill that poses persistent challenges. Students frequently encounter difficulties in generating and organizing ideas, often due to limited linguistic exposure, restricted vocabulary, and insufficient strategies to initiate the writing process (Rido et al., 2018). These issues are particularly pronounced among undergraduate students, who are expected to engage in academic writing as a means of expressing critical thought and argumentation. The ability to develop coherent and well-organized writing is not merely a language task but a developmental skill that underpins learners' broader academic success and professional competence.

In the EFL classroom, challenges in writing are often attributed to a lack of confidence and limited mastery of writing conventions, which can lead to disorganized and underdeveloped compositions (Anh, 2019; Elliott et al., 2017). Students frequently experience cognitive overload when trying to manage grammar, vocabulary, and structure

simultaneously, resulting in anxiety and avoidance behaviors. Such challenges are particularly evident during the early stages of academic writing, such as in Paragraph Writing courses, where learners must begin developing foundational skills in idea generation and organization before advancing to essay-level writing (Oshima & Hogue, 2007). Without proper guidance in the prewriting phase, students struggle to transform abstract ideas into coherent structures, making idea development one of the most critical yet challenging aspects of writing (Abedianpour & Omidvari, 2018). This issue highlights the need for supportive tools that can guide students through the cognitive stages of writing.

Technological advancements have increasingly reshaped the landscape of education, providing learners with tools that enhance their autonomy and engagement. Artificial Intelligence (AI) has emerged as one of the most transformative developments in language education, particularly for tasks involving text production and revision (Barrot, 2022; Raheem et al., 2023). Among these AI tools, ChatGPT an interactive,

language-based model developed by OpenAI has gained significant attention for its ability to provide real-time feedback, generate ideas, and facilitate brainstorming (Lee, 2020; Pedró, 2019). Its interactive nature allows students to explore ideas and refine their understanding through dialogue, helping them overcome initial barriers in generating and structuring ideas. In Paragraph Writing courses, where idea development forms the foundation for academic writing, ChatGPT can function as a cognitive and metacognitive support tool that enhances students' fluency, confidence, and creativity in expressing ideas.

Preliminary observations conducted among students in the English Language Education Study Program at Universitas Tanjungpura revealed that learners often use ChatGPT to assist with idea generation and organization. This aligns with the growing trend of AI integration in education, where students employ digital tools to support academic writing tasks. Students reported that ChatGPT helped them brainstorm, clarify concepts, and structure their

paragraphs more effectively. However, despite its perceived usefulness, there remain concerns about overreliance, accuracy, and ethical considerations in AI-assisted writing. These observations underscore the importance of understanding how students perceive ChatGPT not merely as a technological novelty, but as a pedagogical tool that influences their approach to writing and learning. Since perception directly influences technology acceptance and learning outcomes, exploring students' perceptions toward ChatGPT becomes crucial for understanding its educational value and limitations.

From a theoretical standpoint, writing can be understood through Hayes' (1996) cognitive process model, which conceptualizes writing as a goal-directed activity involving planning, translating, and reviewing. This model emphasizes that idea generation is not linear but recursive, requiring constant interaction between thought, language, and reflection. The application of this theory provides a framework for understanding how tools like ChatGPT can facilitate the cognitive stages of writing by offering

scaffolds during planning and revision. In parallel, the concept of perception offers insight into how learners interpret and respond to educational technologies. As Qiong (2017) explains, perception involves the processes of selection, organization, and interpretation of stimuli, which are influenced by individual experiences, cognitive frameworks, and contextual factors. Students' perceptions of learning tools therefore determine how effectively they engage with and adopt those tools in their academic practices.

Finally, the Technology Acceptance Model (TAM) proposed by Davis (1989) serves as the principal theoretical framework guiding this research. TAM posits that two main constructs Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) shape individuals' Attitude Toward Using (ATU) and Behavioral Intention (BI) toward technology adoption. In educational contexts, TAM has been widely used to evaluate students' acceptance of digital learning platforms and tools. Applied to ChatGPT, TAM helps explain how students' beliefs about its usefulness in enhancing idea development and its

ease of use in writing influence their overall attitudes and intentions to continue using it. Integrating the theories of writing, perception, and technology acceptance thus provides a comprehensive framework for examining undergraduate students' perceptions of ChatGPT as a supportive tool for idea development in academic writing.

B. Research Methodology

This study employed a quantitative descriptive design using a survey method to explore undergraduate students' perceptions of using ChatGPT for idea development in writing. Quantitative descriptive research was chosen to describe existing conditions without manipulating variables, focusing on what occurs rather than why it occurs (Creswell, 2018; Earl Babbie, 2009). A cross-sectional design was used, collecting data once at a specific time to capture students' current perceptions (Wang & Cheng, 2020). The data obtained from the questionnaire were analyzed using descriptive statistics, allowing patterns and tendencies in students' perceptions to be identified clearly.

The participants were selected through purposive sampling, ensuring relevance to the research focus. A total of 23 fourth-semester students from Class A1 of the English Language Education Study Program at Universitas Tanjungpura served as the main participants, all of whom had completed the *Paragraph Writing* course. Additionally, 21 students from Class A2 participated in the instrument testing phase.

Data were collected using an online questionnaire distributed via Google Forms, shared through WhatsApp with a clear explanation of the research purpose and confidentiality assurance. The collection process lasted two weeks. The questionnaire, adapted from Davis (1989); Shroff et al., (2011), consisted of 24 close-ended items based on the Technology Acceptance Model (TAM) constructs Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Attitude Toward Use (ATU), and Behavioral Intention (BI) and was aligned with Hayes' (1996) writing model (planning, translating, reviewing). Each item used a five-point Likert scale from Strongly

Disagree (1) to Strongly Agree (5) (Dörnyei, 2007).

Instrument testing confirmed all items were valid and reliable, with a Cronbach's alpha value of 0.990, indicating excellent internal consistency (Gliem, 2003). The collected data were analyzed using SPSS 26, calculating mean scores and standard deviations for each TAM construct. Mean interpretation followed the Likert scale intervals: 1.00–1.80 (Very Negative) to 4.21–5.00 (Very Positive). The results were presented in tables and figures, describing students' perceptions of ChatGPT in terms of usefulness, ease of use, attitude, and behavioral intention toward its application in idea development during writing.

C.Result and Discussions

This study explored undergraduate students' perceptions of using ChatGPT for idea development in academic writing through the framework of the Technology Acceptance Model (TAM). Data were obtained from 23 fourth-semester students of the English Language Education Study Program at Universitas Tanjungpura, all of

whom had completed a *Paragraph Writing* course. The results demonstrate that students generally have a positive perception across all four TAM constructs Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Attitude Toward Use (ATU), and Behavioral Intention to Use (BIU). The overall mean score ($M = 4.04$; $SD = 0.56$) lies within the “agree” to “strongly agree” interval, indicating positive acceptance and alignment with Davis' (1989) theory that both usefulness and ease of use shape favorable attitudes toward technology.

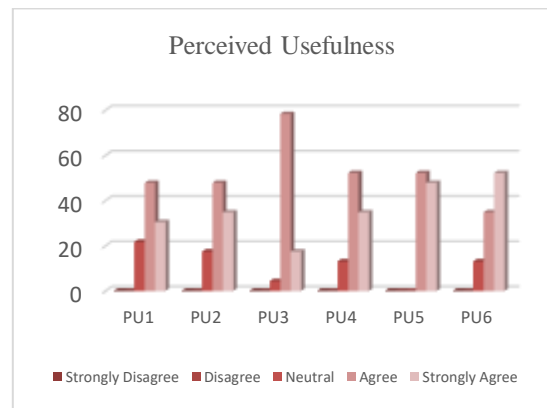
The result which covers the writing processes by Hayes (1996), which are planning, translating, and reviewing, and the TAM framework which covers Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Attitude Toward Using (ATU).

The Perceived Usefulness construct measured students' perceptions of how ChatGPT supported their writing processes, particularly in the stages of planning, translating, and reviewing, as described by Hayes (1996).

Table 1 Students' Perceptions on Perceived Usefulness (PU)

Item	Mean	SD	Interpretation
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PU1	4.09	0.58	Positive
PU2	4.13	0.60	Positive
PU3	4.09	0.52	Positive
PU4	4.04	0.54	Positive
PU5	4.17	0.47	Positive
PU6	4.08	0.56	Positive

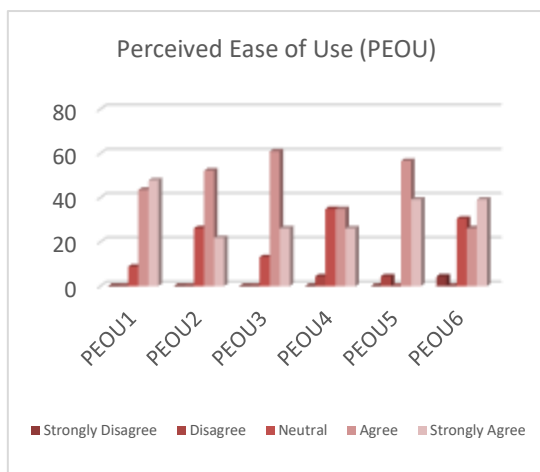


Graphic 1 Students' Perceptions on Perceived Usefulness (PU) of ChatGPT in Idea Development.

The Perceived Ease of Use construct captured how easily students interacted with ChatGPT during writing.

Table 2 Students' Perceptions on Perceived Ease of Use (PEOU)

Item	Mean	SD	Interpretation
PU1	4.13	0.59	Positive
PU2	4.09	0.62	Positive
PU3	4.04	0.54	Positive
PU4	3.91	0.60	Positive
PU5	4.13	0.55	Positive
PU6	3.95	0.58	Positive

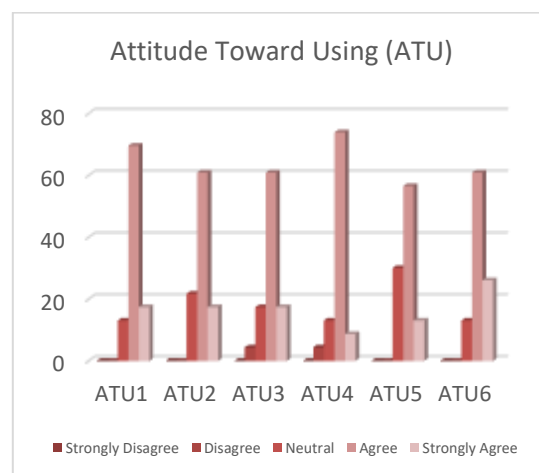


Graphic 2 Students' Perceptions on Perceived Ease of Use (PEOU) of ChatGPT in Idea Development.

The Attitude Toward Using construct reflected students' overall feelings and emotional responses to using ChatGPT.

Table 3 Students' Perceptions on Attitude Toward Using (ATU)

Item	Mean	SD	Interpretation
PU1	4.13	0.59	Positive
PU2	4.09	0.62	Positive
PU3	4.04	0.54	Positive
PU4	3.91	0.60	Positive
PU5	4.13	0.55	Positive
PU6	3.95	0.58	Positive

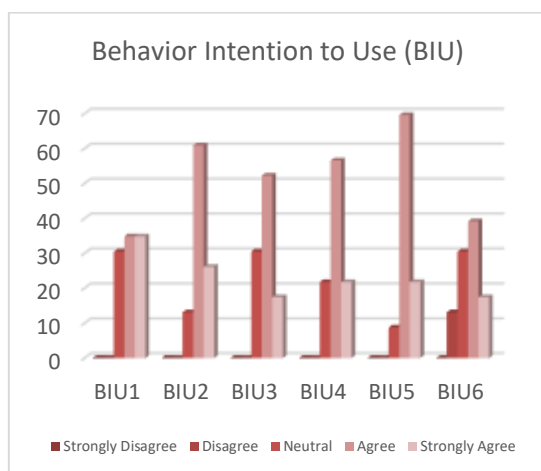


Graphic 3 Students' Perceptions on Attitude Toward Using (ATU) of ChatGPT in Idea Development.

The Behavioral Intention to Use construct measured students' willingness to continue using ChatGPT in the future.

Table 4 Students' Perceptions on Behavioral Intention to Use (BIU)

Item	Mean	SD	Interpretation
PU1	3.96	0.60	Positive
PU2	4.04	0.57	Positive
PU3	3.96	0.56	Positive
PU4	4.00	0.55	Positive
PU5	4.09	0.52	Positive
PU6	3.91	0.58	Positive



Graphic 4 Students' Perceptions on Behavioral Intention to Use (BIU) of ChatGPT in Idea Development.

Overall, These findings align with Davis's (1989) Technology Acceptance Model (TAM), which explains that perceptions of usefulness and ease of use influence users' attitudes and behavioral intentions toward technology. In this study, students emphasized ChatGPT's usefulness and ease of use during the three cognitive stages of writing, planning, translating, and reviewing, as outlined by Hayes (1996). This integration demonstrates that usefulness is the primary factor driving acceptance, while ease of use reinforces both perceived usefulness and positive attitudes.

In the planning stage, students reported that ChatGPT helped them

generate and organize ideas when they struggled to begin writing. This corresponds with high PU and PEOU scores, showing that ChatGPT was both beneficial and simple to operate for brainstorming.

During the translating stage, students found ChatGPT effective in articulating abstract ideas into coherent sentences, reflected in strong PU and ATU scores. By providing phrasing suggestions, ChatGPT reduced linguistic barriers and boosted students' confidence in expressing thoughts.

In the reviewing stage, ChatGPT supported students in refining, clarifying, and revising their writing, as shown in high PU and BIU scores. It served as a feedback tool that helped them identify weaknesses and improve coherence.

D. Conclusion

This study explored undergraduate students' perceptions of using ChatGPT for idea development in academic writing based on the Technology Acceptance Model (TAM). Using a descriptive quantitative design involving 23 fourth-semester students from the English

Language Education Study Program at Universitas Tanjungpura, the research examined four TAM constructs: Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Attitude Toward Using (ATU), and Behavioral Intention to Use (BIU). The results revealed predominantly positive perceptions, indicating that students viewed ChatGPT as a valuable, easy-to-use, and motivating tool that supported their idea development across the three stages of writing planning, translating, and reviewing as described by Hayes (1996). ChatGPT was particularly helpful in generating and organizing ideas during the planning stage, transforming abstract thoughts into coherent sentences in the translating stage, and refining and clarifying drafts in the reviewing stage. These findings confirm the relevance of Hayes's cognitive writing model and Davis's (1989) Technology Acceptance Model in explaining students' acceptance of AI tools in learning. High levels of perceived usefulness and ease of use fostered favorable attitudes and stronger intentions to continue using ChatGPT, highlighting its pedagogical potential

as both a cognitive and motivational aid in EFL writing.

Furthermore, the study underscores ChatGPT's role as a supportive companion that enhances students' confidence, autonomy, and creativity in academic writing. Its practicality and accessibility make it an effective aid for brainstorming, organizing, and revising ideas while maintaining engagement and motivation throughout the writing process. These results suggest that integrating ChatGPT into writing instruction can provide meaningful benefits when used critically and responsibly. Future research is encouraged to expand the scope by involving larger and more diverse participant groups, employing longitudinal designs, or comparing ChatGPT with other AI-based tools to examine their effectiveness across broader dimensions of writing performance, such as coherence, grammatical accuracy, and critical thinking.

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