

# The Impact of AI-based Technology such as Chat-GPT on Second Language (L2) Learners' Academic Writing

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*This study examines how AI, more especially ChatGPT, can help second language (L2) and non-native scholar (NNS) learners with academic writing. To comprehend its acceptance, it uses the diffusion of innovation (DOI) theory. The study looks into how ChatGPT affects NNSs' confidence and writing abilities. The study supports a balanced strategy in incorporating ChatGPT to help NNSs in academics while noting problems such as plagiarism.*

## Introduction

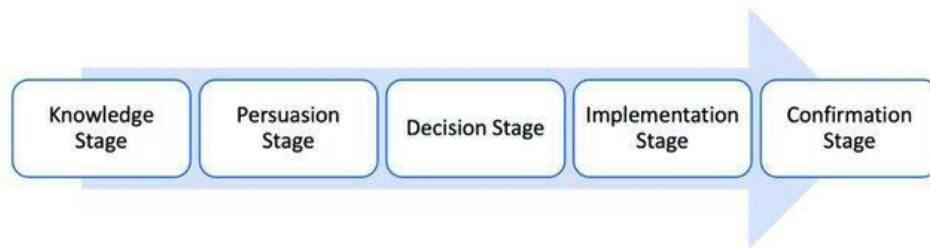
Interest in Artificial Intelligence (AI) has been gaining momentum globally in recent times, especially among Non-Native Scholars (NNSs) and Second Language (L2) learners. With the advancement of this technology, researchers and practitioners in educational institutions are exploring how AI can be used as a learning tool to help students in their learning process. One of the AI tools that have been getting a lot of admiration as well as criticism is ChatGPT (Generative Pre-training Transformer) used in writing academic papers. As researchers and practitioners in education who embrace the use of these technologies, this also brings excitement, new ideas, and unexplored opportunities that can be explored, such as the usefulness of this technology as a tool in students' learning process, especially in their academic writing. OpenAI's GPT specializes in replicating human-like writing through intensive text training. With its ability in Natural Language Processing (NLP), this AI model is frequently employed in chatbot applications such as ChatGPT, which displays interactions resembling those of an individual (Biswas, 2023). This paper will present a problem faced by NNSs, in particular, Doctoral students (Li et al., 2015), who encounter considerable difficulties meeting the linguistic requirement set by international English-language journals (Chen et al., 2020; Flowerdew, 2019). In contrast to Native Scholars (NSs), NNSs frequently have difficulty locating competent editors who are also experts in their field of study. NNSs are burdened excessively by these restrictions, which might lead them to be marginalized and discouraged from publishing in academic journals. (Hanauer & Englander, 2011; Flowerdew, 2019).

## Theoretical Perspective

This study aims to employ AI-based technologies to aid NNSs in writing academic research papers. This review investigates how NNSs can use new technologies to help them write academic papers. The diffusion of innovation (DOI) theoretical framework (Rogers, 1995) will be applied to explain how AI-based technology is adapted over time. The DOI process consists of five steps: (1) the knowledge stage, (2) the persuasion stage, (3) the decision stage, (4) the implementation stage, and (5) the confirmation stage. The decision to adopt innovations into current practices is evaluated and made by a person (or decision-making unit, or cultural system). In this study, the person in the unit or the cultural system is the NNSs, who are interested in using ChatGPT in their writing process. In the knowledge stage, when an individual or group such as the NNSs make efforts to learn about the innovation (ChatGPT) and starts to comprehend how it works, the diffusion of innovation process shown in Figure 1 gets started. A favorable or unfavorable opinion is created based on the perceived qualities of the innovation during the persuasive stage. In the decision stage, actions are taken by a person (or decision-making unit) that result in a decision regarding whether to accept or reject the innovation. In other words, adoption denotes a change from the past behavior of a person or group of people in charge of making decisions. The innovation is applied in the implementation phase. The individual or unit making the decision then seeks confirmation of the choice to accept or reject the innovation during the confirmation step (Asino et al., 2022). For example, NNSs accept the use of ChatGPT, and it helps them write papers, while other users, such as faculty members, refuse to accept the use of this technology since they consider it unfair.

### Figure 1

*Five stages in the diffusion process (Asino et al., 2022)*



## Research Questions

The main research objective is to investigate how AI such as ChatGPT can assist research academics for whom English is not their first language, specifically, to explore how ChatGPT can assist NNSs with low writing proficiency, and communicate and publish more effectively within their field and keep them from marginalization or discouragement in academic discourse (Hyland, 2016; Ramírez-Castañeda, 2020). To achieve this objective, the following research questions were answered:

1. How does the utilization of ChatGPT on NNSs impact their writing performance?
2. Does the integration of ChatGPT encourage self-confidence and improve NNSs' writing ability?

## Data Collection

The data collection and analysis were directed by the questions mentioned above. The research's unit of analysis is "AI-based Technology and Academic Writing for Non-Native Scholars." The use of AI-based tools such as ChatGPT in various educational settings was gathered by looking for peer-reviewed articles in Google Scholar. These search criteria were applied to find these articles:

- Searchfield: (TX"AI-based technology") AND (Academic Writing for Non-Native Scholars)
- Limit to: Full Text AND Peer Review
- Publication Date: 2000 to 2023
- Document Type: Journal Article
- Language: English

The results from the above search query were used for this study. The goal was to identify literature from 2015 to the end of 2023 on AI-based technology and Academic Writing for NNSs. The initial search on Google Scholar yielded 8 articles. A separate search was conducted on the Oklahoma State Library database that yielded 150 articles. For this study, 35 articles were selected from the 150 articles that were retrieved. A brief analysis of the abstracts was conducted, and 12 articles were selected. Further review of the selected articles was performed, and the selections were narrowed down to 8 articles. Additional articles were identified and included in this study. In total, 24 articles were identified using Google Scholar and used in writing this review.

## Findings

This paper presents a review of the literature published on the use of AI such as ChatGPT, an Automated Writing Evaluation (AWE) in writing academic papers, and how ChatGPT can be utilized by NNSs to help them write scholarly papers and articles for publications. Studies (Gea-Valor et al., 2014; Zhai, 2022) have shown that there is potential in the use of ChatGPT to write academic papers in the United States (US) and globally. This shows that ChatGPT as a learning tool has potential and can contribute significantly to the improvement and quality of writing in academia. With this potential, this AI-based learning tool can be used to assist NNSs who face the issue of writing proficiency when trying to publish their research in internationally based English-based journals. The findings from this study discussed the use of ChatGPT and explained why this emerging technology should be used in writing different academic papers. By discussing the findings, this literature review hopes to demonstrate the impact ChatGPT can have on NNSs' academic writing proficiency and how that can lead to them publishing in English-based journals overseas.

### ChatGPT and its Impact on NNSs' Writing Performance

AI, like ChatGPT, is growing in popularity and is used in education (Gea-Valor et al., 2014). Despite this positive momentum, educators, particularly those in higher education, have expressed concern about the usage of ChatGPT to assist students in writing papers and how it is perceived as harming students' learning process. Despite the potential advantages, such as improving students' critical and writing skills that this technology brings, some educators in the field of education still see it negatively. However, those educators who support the use of technology in the classroom see it as a tool for teaching that can help students in the development of their learning process. Interestingly, despite the drawbacks, there are numerous instances of students using ChatGPT to assist them in writing academic papers (Zhai, 2022). By giving them personalized feedback on their writing, ChatGPT enables NNSs and minimizes the need for constant supervision from NSs (Flowerdew, 2019). Additionally, NNSs' learning autonomy grows, and critical pedagogy is promoted by AI-powered tools to monitor progress, modify the difficulty, and provide personalized material (Nazari et al., 2021). This makes it possible for NNSs to efficiently establish and maintain their academic goals while evaluating their strengths as well as their weaknesses.

### ChatGPT: Challenges in Higher Education

While ChatGPT has potential advantages, there are drawbacks in terms of evaluation in higher education, such as issues with plagiarism (Pecorari & Petrić, 2014). This technology has the potential to undermine education by enabling students to turn in assignments that are not their own (Cotton et al., 2023). Furthermore, it might provide users unfair advantages while making it harder for teachers to effectively assess the understanding of learners (Cotton et al., 2023).

## Discussion

According to the literature, there is interest in using AI in educational settings. Researchers and practitioners in the field of education have been showing interest in AI tools such as ChatGPT and how they can be utilized in education (Pokrivcakova, 2019). However, there is resistance by faculty members, especially in higher education, to disallow students to use AI technologies like ChatGPT to write academic papers. Many of these faculty members resist the use of ChatGPT because they think it is cheating and unfair. Even though faculty members resist the use of ChatGPT when writing academic papers, studies show that ChatGPT has many benefits in an academic environment if fostered in a manner that will support students' learning.

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