

NAVIGATING the Landscape of ChatGPT as Artificial Intelligence Tool on Research Writing: A Phenomenological INQUIRY

Jezreel D. Albino¹, John Rey A. Aleria²

¹Senior High School Faculty, Cor Jesu College, Inc., Digos City
jezreel.albino@gmail.com

²Graduate School Department, University of the Immaculate Conception, Davao City, Philippines
jaleria@uic.edu.ph

ABSTRACT

This study explored the experiences of graduate students using ChatGPT as an artificial intelligence tool in their research writing, dealing with lived experiences, coping strategies, and insights. The researcher employed a qualitative research method, specifically a phenomenological design, where graduate students from schools within the province of Davao del Sur, chosen via purposive sampling, were selected as study participants. In-depth interviews and focus group discussions were employed to investigate the participants' firsthand experiences. Colaizzi's approach was applied to analyze the data, uncovering key themes relevant to each research inquiry. The findings revealed four key themes from the lived experiences of using ChatGPT: versatility, information inconsistencies, limited contextual understanding, and negative self-conscious emotions. The participants employed various coping strategies to address the challenges encountered while using ChatGPT, such as verifying AI-generated content, using ChatGPT judiciously, and providing detailed context to obtain more precise and relevant results. Participants also shared insights on incorporating ChatGPT into research, underlined the significance of its integration in educational settings, and emphasized the ethical conduct of research. These urged students to use ChatGPT responsibly to ensure their work remained original and adhered to academic integrity standards.

KEYWORDS: *Education, artificial intelligence, ChatGPT, graduate school students, research writing, academic writing, phenomenology, Philippines*

INTRODUCTION

Writing is regarded as one of the essential skills that every student must

possess, as it is one of the vital elements of education (Totto & Ramos, 2021). It is a skill that students must master as the K-12 Basic Education Curriculum has led to increased academic writing tasks, which include research-related subjects such as Qualitative Research and Quantitative Research, as stated in the Senior High School's Curriculum Guide (Roxas, 2020; Paurillo, 2019). However, students perceive academic writing as complex since it demands sufficient knowledge, enthusiasm, motivation, and hard work. Conducting research is challenging for students, who often perceive it as daunting and laborious, finding it difficult, unclear, and uninteresting (Alsied & Ibrahim, 2017; Ecija & Siguan, 2020). Although the educational sector has made clear attempts to support and enhance students' writing abilities, many students seem to face difficulties with academic writing tasks, and their insufficient writing proficiency has been identified as a significant issue (Roxas, 2020; Yang, 2018). According to Dunn (2021), the U.S. National Assessment of Educational Progress in 2021, around 75 percent of students needed more basic writing skills.

A study by Gupta et al. (2022) at a research university in Canada revealed that nearly 90 percent of doctoral students who participated identified a need to enhance their academic writing abilities and cited the writing process and articulating content and ideas as the most formidable challenges. This finding aligns with a study by Sitompil and Anditasari (2022) involving master's students pursuing English Language Education in Malang, Indonesia, which concluded that despite prior exposure to research at undergraduate and master's levels, numerous students continue to face challenges with different elements of the research process. Further, emphasizing the global nature of struggles encountered by learners in research writing, a study by Qasem and Zayid (2019) among undergraduate students at the University of Bisha in Saudi Arabia highlighted that approximately 70 percent of participants struggled significantly with writing and conducting research projects in English. Similarly, a study encompassing students from two universities in Pakistan conducted by Javed (2019) found that 80 percent of participants considered writing research projects in a second language a significant obstacle.

Meanwhile, in the Philippines, a study conducted at a state college in the Mountain Province by Pangket et al. (2023) revealed that students exhibited only moderate research readiness. Consequently, some students faced challenges completing their research projects on time or even abandoned them, suggesting they needed more research skills. Furthermore, a study conducted in Laoag City reveals that students struggle with content and idea development, organization,

vocabulary, and language in their writing (Pablo & Lasaten, 2018). Collectively, these research works underscore the extensive and varied obstacles encountered in academic writing and research echoed across different geographical and educational settings. However, technological progress impacts education nowadays and enables individuals to achieve their desired outcomes by improving the quality of their writing and aiding in the writing process (Rahmadani, 2022). One is artificial intelligence (AI), which includes examples like ChatGPT, which can improve writing quality.

In the past three decades, there has been significant development in artificial intelligence to the point where it is now being used for educational purposes (AlAfnan, 2023). One example of this AI is the Chat Generative Pre-trained Transformer (ChatGPT), which can complete various language tasks and produce human-like responses (Degraa, 2023). Many people from different backgrounds are enthusiastic about this new application, and lively discussions occur, particularly in education (Chen, 2023).

Tools powered by artificial intelligence have also seen a rise in popularity in research writing. Beyond ChatGPT, there are other commonly used AI tools that researchers rely on. There are some notable examples such as Elicit, which locates relevant papers; Semantic Scholar, which offers summaries of papers' main objectives and results; Research Rabbit, which is a citation-based mapping tool; Scite, which helps researchers with topic development, paper search, and citation context search; Scholarly which summarizes important points of articles into summary cards; and Bard, a chatbot that can provide helpful information in response to queries expressed in natural language (Artificial Intelligence, 2023) other AI writing tools include Grammarly, Notion, Quillbot, and WordTune among others (AI Tools, 2023). But, Willing (2024) highlighted that ChatGPT was the most popular website for generative AI tools, accounting for 60.17 percent of the total traffic, and experienced an average monthly growth of 195.1 million visits.

Nevertheless, using AI tools in academic research has sparked a contentious discussion among journal editors, researchers, and publishers (Marchandot et al., 2023). This debate stems from the relative uncertainty surrounding how these tools impact the landscape of academic writing. According to Alkaissi & McFarlane (2023), ChatGPT's impact on academic writing is largely unknown, bringing up worries about the dependability and precision of implementing it in scholarly writing. Even so, Ali et al. (2023)

recommended using ChatGPT as a tool for learning rather than being fearful of its potential negative effects, which require thorough investigation, suggesting further quantitative and qualitative research exploring the impact of ChatGPT on different aspects of language and shed light on its adverse effects. Apart from this, Huallpa et al. (2023) also suggested conducting more qualitative research in different contexts to comprehend the ethical implications and guarantee responsible implementation methods after revealing that using ChatGPT in higher education is complex due to various factors, including personal beliefs, cultural norms, and ethical concerns.

This study aims to fill this knowledge gap by exploring the lived experiences, insights, and coping mechanisms of graduate school students using ChatGPT to aid their research writing endeavors. This study will illuminate the broader conversation regarding the interaction between human intelligence and AI support in scholarly pursuits by examining the multifaceted roles these AI tools assume in the research writing process.

This study aimed to thoroughly examine the experiences of graduate students' interactions with ChatGPT as an artificial intelligence tool in their research writing endeavors, including the strategies they used to cope with the challenges encountered and insights gained from their experiences. By understanding graduate students' experiences, the study aimed to offer a basis for schools to make informed decisions and devise guidelines and regulations for integrating artificial tools such as ChatGPT in research writing customized to their specific academic settings.

Theoretical Lens

The study is anchored on the Social Construction of Technology (SCOT) theory developed by Pinch and Bijker in 1984 and the Activity Theory proposed by Vygotsky in 1978. According to SCOT, we should examine technological artifacts from several viewpoints (Zhou, 2022). This idea posited that multiple social factors influence the significance of a technical product. The theory states that social forces substantially impact the success and adoption of a technological artifact (Setargew, 2006). In the context of this study, the theory of Social Construction of Technology (SCOT) helped understand the social impacts, interpretations, and integration of ChatGPT, an artificial intelligence tool, in research writing. Here, the significance of the technical artifact, ChatGPT, might have been influenced by many social factors, such as varied groups of researchers. Thus, as various researchers used ChatGPT, they brought

their interpretations, expectations, and opinions to ChatGPT. The theory proposed examining how researchers collaboratively influenced and established the importance of ChatGPT in research writing.

Alternatively, the Activity Theory, which Vygotsky (1978) first created and Leont'ev (1978, 1981) and Engeström (1996) further developed, offered a different viewpoint. This theory emphasized that human activity was a deliberate and goal-oriented interaction between people and their surroundings (Engeström, 2001). In the context of this study, Activity Theory served as a valuable framework for examining the dynamic relationships among various components of the activity system, such as the students (subjects), AI software (tools), academic norms (rules), the educational environment (community), and the division of labor (roles and tasks). Students were viewed as active participants, while AI tools acted as intermediaries, shaping students' engagement with the writing process. Through Activity Theory, researchers could explore how students incorporated these tools into their writing practices and adapted to academic norms and community expectations. Moreover, by observing the distribution of tasks between students and AI tools in the activity system, researchers could gauge how students utilized these tools for content generation, editing, and refining their research papers. Additionally, researchers could investigate how students navigated their roles and the roles of these tools to achieve their desired outcomes in writing.

METHODS

This study employed a qualitative research design using the phenomenological approach to investigate students' lived experiences, insights, challenges, and coping mechanisms regarding using an AI tool, specifically ChatGPT, to enhance research writing. According to Crossman (2020), qualitative research focuses on examining the non-numerical aspects of existence and meaning, and this approach has helped us to understand a particular population or location's social life. The phenomenological approach was ideal for this study since it emphasized observing how participants engaged with ChatGPT, not only as a mere tool but as a lived experience connected to their research practices.

This study was conducted in Davao del Sur. This study utilized the purposive sampling technique to select research participants. The participants were selected based on specific requirements, such as graduate school students enrolled in any graduate school in Davao del Sur, taking any graduate course,

and having prior experience using ChatGPT to write research in their Research Methods and Thesis Writing subjects.

Additionally, this study involved in-depth interviews and focus group discussions with the participants. Consequently, this study included 14 participants, with 8 participating in in-depth interviews and 6 in focus group discussions.

The systematic and thorough approach was used to analyze data for this qualitative study based on Colaizzi's methods in descriptive phenomenology.

RESULTS

Table 1
Profile of the Participants

Participant's Code	Gender	Age	Master's Degree
IDI1	Female	25	MAED-ST
IDI2	Female	24	MBA
IDI3	Male	24	MAED-LT
IDI4	Female	29	MAED-ELT
IDI5	Male	33	MAED-FILIPINO
IDI6	Female	27	MBA
IDI7	Male	24	MAED-MT
IDI8	Male	30	MAED-FILIPINO
FGD1	Male	26	MAED-ENGLISH
FGD2	Female	24	MAED-LT
FGD3	Male	26	MAED-MT
FGD4	Female	26	MAED-FILIPINO
FGD5	Male	26	MPED
FGD6	Male	25	MBA

Presented in Table 1.1 is the demographic profile of the study's participants. The study included 8 participants for in-depth interviews and 6 for focus group discussions. As seen in the table, the participants were pursuing different master's degrees in graduate school, with a significant number enrolled in language programs. Furthermore, several other master's programs had no representation at all. All participants were of legal age, ranging from 24 to 33 years old, and most were males.

Lived Experiences of Graduate School Students in Utilizing ChatGPT in Writing their Research

Table 2

Lived Experiences of Graduate School Students in Utilizing ChatGPT in Writing their Research

Essential Theme	Core Ideas
Versatility of ChatGPT	Guiding them in writing Chapter I, RRL, references, and the theoretical lens of the paper Asking ChatGPT in the crafting of the title of the paper Using the tool in translating very technical terms Asking ChatGPT for suggestions and strategies for their capstone Providing and supplementing the ideas based on the criteria given Enhancing the writing output
Negative Self-Conscious Emotion	Feeling ashamed when someone learned that they were using ChatGPT Feeling anxious whenever they used ChatGPT
Inconsistencies of Information	Generating data that does not exist in Google Generating information with inconsistencies in the context of information Providing inaccurate data Referencing was not reliable Providing some irrelevant results in terms of information

Limited Contextual Understanding	Elaborating generated themes but had limitations Demonstrating unreliability when it came to the Filipino language Providing answers that are too broad
---	---

Table 2 showcases participants' lived experiences utilizing ChatGPT for their research writing endeavors. A thematic analysis revealed key themes such as the versatility of ChatGPT, negative self-conscious emotion, inconsistencies of information, and limited contextual understanding. These experiences highlighted the advantages and challenges of employing this AI tool in research writing tasks.

The versatility of ChatGPT is showcased through its diverse applications on the graduate student's research tasks. These students have utilized ChatGPT's capabilities to assist with composing Chapter I, reviewing related literature, citing references, and developing their paper's theoretical lens. They have also turned to ChatGPT for help formulating their paper titles and translating complex technical terms. Furthermore, they have sought advice and strategies for their capstone projects. ChatGPT has notably improved the quality and output of the participant's research paper by providing and supplementing ideas based on specific criteria. The study's results are congruent with those of Saygın & Kabakçı (2023), who reported that AI can help with different stages of research and writing, such as reviewing literature, creating references, and formatting articles, which can increase efficiency. Additionally, Marchandot et al. (2023) highlight the usefulness of ChatGPT for researchers, emphasizing its capability to facilitate data analysis, conduct literature reviews, and assist in the composition of research papers. The participants of this study have shared that they mainly used ChatGPT to arrange or craft the flow of their review of related literature, and ChatGPT makes it easier due to its ideas and suggestions. This idea is further strengthened by Alkaissi & McFarlane (2023), who mentioned that ChatGPT can be helpful in academic writing by helping writers organize scattered bullet points into cohesive texts. Moreover, it can also aid in managing references and citations.

Regarding negative self-conscious emotion, the study's findings showed that graduate students who used ChatGPT for their research suffered a strong sense of shame. When others learned about using ChatGPT, they felt

embarrassed and self-conscious. Furthermore, these students felt anxious whenever they utilized ChatGPT and were concerned about the ethical implications and potential criticism from peers and professors. This combination of shame and anxiety highlighted the enormous emotional impact that using ChatGPT could have on students in academic contexts. These concerns were replicated in the research by Limna et al. (2023), who discovered that participants were concerned and worried about the authenticity and dependability of ChatGPT's information, thinking it might deliver erroneous or incomplete information that could impair their learning outcomes. Similarly, Ajlouni et al. (2023) found that some participants were uncomfortable using ChatGPT for educational purposes and needed further assistance to become more comfortable with the platform.

The research findings emphasized the essential theme of information inconsistencies, pointing out that data supplied by ChatGPT frequently did not exist on Google and could be contextually inconsistent. ChatGPT could not provide correct data and was untrustworthy with references, with many of its results being irrelevant and inaccurate. These limitations highlighted the difficulties in using ChatGPT as a credible tool for gathering research data. These findings share similarities with the study of Alkaissi & McFarlane (2023), who mentioned that the full extent of AI's impact on academic writing remains unclear, as it can generate both trustworthy and untrustworthy content, raising concerns. While Alafnan (2023) also highlighted that AI can help students uncover information and generate ideas, misuse could harm their academic performance and instructors' assessments.

The study's findings showed that ChatGPT's inadequate contextual comprehension presented various issues. It struggled to elaborate on created ideas, frequently delivering overly broad answers. Furthermore, ChatGPT was unreliable in the Filipino language, which limited its applicability in specific circumstances. The insufficient contextual awareness that surfaced strongly in this study's results demonstrates ChatGPT's inadequacies. Participants stated that ChatGPT has difficulties elaborating on produced themes and frequently delivers overly broad responses. Studies like Ray's (2023) have highlighted reliability difficulties, with AI language models occasionally generating untrustworthy, erroneous, and misleading information. This is especially problematic in education and scientific research, where precision is critical to preserving integrity. In addition, Kumar (2023) claims that while ChatGPT offers enormous potential for training and upskilling, it lacks crucial features such as correct

reference, in-depth knowledge, and contextualization, which are inherent in human intelligence.

Coping Strategies Do Students Use While Facing Challenges Utilizing ChatGPT in Writing Their Research

Table 3

Coping Strategies Do Students Use While Facing Challenges Utilizing ChatGPT in Writing Their Research

Essential Themes	Core Ideas
Verifying Generated Content	Validating the contents Verifying the result of ChatGPT with proquest Verifying the result provided by ChatGPT using Google
Judicious using ChatGPT	Using other tools to edit the paper Reading and understanding the information provided by ChatGPT Paraphrasing the information provided by ChatGPT using other tools like Quillbot
Providing Contextual Details	Using of specific words in searching in ChatGPT Reconstructing or restating questions to ChatGPT

Revealed in Table 3 are the participants adopted various coping strategies to address challenges and problems while utilizing ChatGPT to improve their research writing. The analysis identified three key themes: verifying generated content, judicious use of ChatGPT, and providing contextual details.

Students' coping techniques when faced with ChatGPT problems were information validation and verification. Students checked the content created by ChatGPT, frequently cross-referencing the results with academic databases such as ProQuest and search engines such as Google to ensure accuracy and

credibility. This technique assisted them in addressing the concerns of disinformation and contextual inaccuracies inherent in AI-generated responses. The participants of this study stressed the need to validate the materials offered by ChatGPT, recommending that researchers verify results using trusted sources such as ProQuest and Google. It matches the study of Donmez et al. (2023), who warns against depending solely on AI-generated content for research, emphasizing the significance of verifying information with credible sources to assure correctness and trustworthiness. The author further noted that while AI technologies provide creative opportunities and varied viewpoints, they raise concerns about trustworthiness, ethical dilemmas, and plagiarism. As a result, it is critical to examine ChatGPT for potential biases and adopt mitigation strategies. Thus, Haleem (2022) also recommends users always double-check ChatGPT responses before adopting them into their papers.

The study found that students used various coping mechanisms when facing academic obstacles. One fundamental idea identified was that they should use additional tools to edit their papers to ensure they fulfilled high-quality and accurate content. Furthermore, students frequently read and comprehend the material offered by ChatGPT, allowing them to grasp complicated subjects better and improve their learning experience. Additionally, to enhance and customize the material gained from ChatGPT, students routinely paraphrased it using tools such as QuillBot, thus enhancing the originality and consistency of their work. Participants stressed the significance of using other tools to edit papers, read and comprehend the information offered by ChatGPT, and summarize its material with tools such as QuillBot. As Sallam (2023) stated in his study, while ChatGPT has interesting uses, it should be used cautiously due to potential ethical difficulties, bias, plagiarism, and errors. In connection to this idea, Imran and Almusharraf (2023) also stated that ChatGPT should be utilized as a collaborative tool for feedback and writing support, like Grammarly and QuillBot, but cautioned against relying primarily on its responses owing to technical issues and obsolete information.

According to the study's findings, providing contextual information was also a student coping mechanism. One important idea was to employ various tools to edit their papers, which helped to ensure clarity and precision in their writing. Furthermore, students used specific words when searching on ChatGPT, which allowed them to get more precise and relevant results. Additionally, they frequently reconstructed or restated their inquiries to ChatGPT to gain a better comprehension and more thorough responses, thus improving the quality and

depth of the contextual information they gave. Providing contextual information is critical for maximizing the utility of ChatGPT; according to Khlaif et al. (2023), the clarity and detail of ChatGPT prompts significantly impact the quality of text produced. Using more descriptive and context-rich questions improves the quality of the generated writing, while idea coherence could be improved further. In addition, Cronje (2023) underlined that big language models, such as ChatGPT, can greatly assist researchers in widening or refining the scope of their work. However, poorly formulated prompts can yield irrelevant or incorrect information. As a result, it is advised that new research students undergo training in creating effective prompts and critically evaluating responses.

Insights and Realizations of Graduate School Students from their Experiences Using ChatGPT to Enhance their Research Writing

Table 3

Insights and Realizations of Graduate School Students from their Experiences Using ChatGPT to Enhance their Research Writing

Essential Themes	Core Ideas
Integration of ChatGPT in the Teaching	Training the students, as part of their subject, on the use of ChatGPT to improve their intellectual capacity and writing skills Providing awareness on the use of ChatGPT Knowing the consequence of using ChatGPT in terms of plagiarism
Emphasize Ethical Conduct of Research	Inculcating the importance of validity, credibility, and research Establishing a policy to guide the researchers on how to properly use ChatGPT

Provided in Table 3 are the graduate students' perceptions and learnings regarding using ChatGPT to improve their research writing. The study's results emphasized two main points: integrating ChatGPT in the teaching and emphasizing the ethical conduct of research.

The study emphasized the need to incorporate ChatGPT into education and revealed numerous key concepts. First, it proposed that professors train students to use ChatGPT as part of their schoolwork to improve their intellectual capacity and writing skills. Second, it emphasized the importance of effectively raising students' awareness about using ChatGPT to maximize its benefits. Finally, the study underlined the importance of students understanding the repercussions of utilizing ChatGPT, particularly those related to plagiarism, to retain academic integrity. Integrating ChatGPT into education brings both potential and obstacles, which educators must carefully handle. This idea is supported by Shoufan (2023), who discovered that students see ChatGPT as a motivating and effective tool for academic and professional activities. To enhance its benefits, teachers should teach students effective prompting tactics as well as critical evaluation of ChatGPT responses.

The study also emphasized the importance of ethical conduct in research, highlighting numerous key principles. First and foremost, students had to be taught the value of authenticity, trustworthiness, and thoroughness in research processes. Second, the study advised that a clear policy be established to guide researchers in using ChatGPT correctly, ensuring that its implementation adhered to ethical standards and contributed positively to academic work. Emphasizing ethical research requires a significant focus on validity, credibility, and extensive research methodology. With this idea in mind, Huallpa et al. (2023) acknowledge the advantages of using ChatGPT but express worries about its limits, such as the lack of human interaction, potential biases, and ethical dilemmas. These considerations highlight the importance of clearly stated institutional ethical frameworks for protecting student privacy and reducing biases. As Rahman et al. (2023) point out, developing standards for using ChatGPT in academic research is critical to ensuring responsible use and maximizing the productivity benefits of ChatGPT while promoting moderation in its use. This notion is further strengthened by Dwivedi et al. (2023), who underline the importance of establishing proper policies for ChatGPT use in educational contexts.

CONCLUSION

The results of this study had several important implications for educational practice, particularly for graduate school students who used ChatGPT in their research writing practices. ChatGPT's versatility was reflected in its varied uses, which included chapter composition, literature review, reference citation, theoretical lens development, paper title formulation,

technical term translation, and capstone project ideas. This versatility significantly enhanced the quality of the student's research papers. However, the emotional impact of utilizing ChatGPT, which included negative self-conscious emotions such as shame and anxiety, emphasized the importance of supportive educational environments that addressed these issues and encouraged open discussions about the ethical use of AI in graduate school.

Moreover, ChatGPT's discrepancies showed its limits as a credible research instrument. Students frequently came across data that did not exist on Google, contextually inconsistent responses, erroneous data, and untrustworthy sources. These challenges must be addressed in ways that address the inherent issues with AI-generated content. As shared by the participants, they utilized varied ways to cope with these challenges, including verification strategies, such as cross-referencing ChatGPT outputs with academic databases like ProQuest and search engines like Google, to guarantee accuracy and credibility. They also utilized other tools to edit their papers and paraphrase ChatGPT information to improve originality and uniformity. ChatGPT's inadequate contextual comprehension, particularly in the Filipino language, also limited its use. However, students learned to handle this by using specific search terms and restating their queries to get more exact and relevant results. These coping techniques highlighted the significance of preparing students to critically analyze and enhance AI-generated content.

The insights acquired from these experiences showed the importance of incorporating ChatGPT into teaching practices. Educators had to teach students how to utilize ChatGPT effectively to improve their intellectual ability and writing abilities and raise awareness about its ethical implications, particularly plagiarism-related ones. Furthermore, it was critical to underline the relevance of ethical research practices. It had to be emphasized to graduate students that they should learn the importance of validity, credibility, and reliability in their research works.

Consequently, schools needed to create explicit policies to guide the proper usage of ChatGPT, to ensure ethical compliance, and to contribute favorably to academic work. This complete strategy could help maximize ChatGPT's benefits while limiting possible drawbacks and creating well-rounded and ethically mindful researchers.

REFERENCES

- AI Tools & Detectors: *AI Writing Tools* (2023). Camden County College Library. Retrieved January 1, 2024 from <https://libguides.camdencc.edu/ai-and-higher-education/ai-tools-and-detectors>
- Ajlouni, A. O., Wahba, F. A.-A., Almahaireh, A. S. (2023). Students' attitudes towards using ChatGPT as a learning tool: The case of the University of Jordan. *International Journal of Interactive Mobile Technologies (iJIM)*, 17(18), 99–117. <https://doi.org/10.3991/ijim.v17i18.41753>
- AlAfnan, M. A., Dishari, S., Jovic, M., & Lomidze, K. (2023). ChatGPT as an educational tool: Opportunities, challenges, and recommendations for communication, business writing, and composition courses. *Journal of Artificial Intelligence and Technology*, 3, 60-68. <https://doi.org/10.37965/jait.2023.0184>
- Ali, J. K. M., Shamsan, M. A. A., Hezam, T. A., & Mohammed, A. A. Q. (2023). Impact of ChatGPT on learning motivation. *Journal of English Studies in Arabia Felix*, 2(1), 41–49. <https://doi.org/10.56540/jesaf.v2i1.51>
- Alkaissi, H., & McFarlane, S. I. (2023). Artificial hallucinations in ChatGPT: Implications in scientific writing. *Cureus*. <https://doi.org/10.7759/cureus.35179>
- Alsied, S. M., & Ibrahim, N. W. (2018). Exploring challenges encountered by EFL Libyan learners in research teaching and writing. *IAFOR Journal of Language Learning*, 3(2). <https://doi.org/10.22492/ijll.3.2.06>
- Artificial Intelligence (Generative) Resources: AI Tools for Research* (2023). Georgetown University Library. Retrieved January 1, 2024 from <https://guides.library.georgetown.edu/c.php?g=1352831&p=9985826>
- Chen, T. J. (2023). ChatGPT and other artificial intelligence applications speed up scientific writing. *Journal of the Chinese Medical Association*, 86(4), 351–353. <https://doi.org/10.1097/jcma.0000000000000900>
- Cronje, J. (2023). Exploring the role of ChatGPT as a peer coach for developing research proposals: feedback quality, prompts, and student reflection. *Electronic Journal of e-Learning*. <https://doi.org/10.34190/ejel.21.5.3042>
- Dergaa, I., Chamari, K., Żmijewski, P., & Saad, H. B. (2023). From human writing to artificial intelligence generated text: examining the prospects and potential threats of ChatGPT in academic writing. *Biology of Sport*, 40(2), 615–622. <https://doi.org/10.5114/biol sport.2023.125623>

- Dönmez, İ., Idin, S., & Gülen, S. (2023). Conducting academic research with the AI interface ChatGPT: Challenges and opportunities. *Journal of STEAM Education*, 6(2), 101-118. <https://doi.org/10.55290/steam.1263404>
- Dwivedi, Y. K., Kshetri, N., Hughes, L., Slade, E., Jeyaraj, A., Kar, A. K., Baabdullah, A. M., Koochang, A., Raghavan, V., Ahuja, M., Albanna, H., Albashrawi, M. A., Al-Busaidi, A. S., Balakrishnan, J., Barlette, Y., Basu, S., Bose, I., Brooks, L., Buhalis, D., ... Wright, R. (2023). Opinion paper: "So what if ChatGPT wrote it?" Multidisciplinary perspectives on opportunities, challenges, and implications of generative conversational AI for research, practice, and policy. *International Journal of Information Management*, 71, 102642. <https://doi.org/10.1016/j.ijinfomgt.2023.102642>
- Dunn, M. (2021). The challenges of struggling writers: Strategies that can help. *Education Sciences*, 11(12), 795. <https://doi.org/10.3390/educsci11120795>
- Ecija, J. D., & Siguan, C. N. (2020). Challenges encountered by senior high school students' researchers in Salcedo 1 District. *Central Asian Journal of Literature, Philosophy and Culture*, 1(1), 26–28. <https://doi.org/10.47494/cajlp.v1i1.49>
- Engeström, Y. (2001). Expansive learning at work: Toward an activity theoretical reconceptualization. *Journal of Education and Work*, 14(1), 133–156. <https://doi.org/10.1080/13639080020028747>
- Gupta, S., Jaiswal, A., Paramasivam, A., & Kotecha, J. (2022). Academic writing challenges and supports: Perspectives of international doctoral students and their supervisor. *Frontiers in Education*, 7, 891534. <https://doi.org/10.3389/feduc.2022.891534>
- Haleem, A., Javaid, M., & Singh, R. P. (2022). An era of ChatGPT as a significant futuristic support tool: A study on features, abilities, and challenges. *BenchCouncil Transactions on Benchmarks, Standards and Evaluations*, 2(4), 100089. <https://doi.org/10.1016/j.tbench.2023.100089>
- Huallpa, J. J., Arocutipa, J. P. F., Panduro, W. D., Huete, L. C., Limo, F. A. F., Herrera, E. E., & Hernandez, F. A. H. (2023). Exploring the ethical considerations of using ChatGPT in university education. *Periodicals of Engineering and Natural Sciences*, 11(4), 105-115. <https://doi.org/10.21533/pen.v11i4.3770>
- Imran, M., & Almusharraf, N. (2023). Analyzing the role of ChatGPT as a writing assistant at higher education level: A systematic review of the

- literature. *Contemporary Educational Technology*, 15(4), ep464. <https://doi.org/10.30935/cedtech/13605>
- Javed, M. (2019). What are the problems for students in writing the first research paper in a second language? *International Journal Online of Humanities*, 5(5). <https://doi.org/10.24113/ijohmn.v5i5.139>
- Khlaif, Z. N., Mousa, A., Hattab, M. K., Itmazi, J., Hassan, A. A., Sanmugam, M., & Ayyoub, A. (2023). The potential and concerns of using AI in scientific research: ChatGPT performance evaluation. *JMIR Medical Education*, 9, e47049. <https://doi.org/10.2196/47049>
- Kumar, A. (2023). Analysis of ChatGPT tool to assess the potential of its utility for academic writing in biomedical domain. *BEMS Reports*, 9(1), 24–30. <https://doi.org/10.5530/bems.9.1.5>
- Limna, P., Kraiwanit, T., Jangjarat, K., Klayklung, P., & Chocksathaporn, P. (2023). The use of ChatGPT in the digital era: Perspectives on chatbot implementation. *Journal of Applied Learning and Teaching*, 6(1). <https://doi.org/10.37074/jalt.2023.6.1.32>
- Marchandot, B., Matsushita, K., Carmona, A., Trimaille, A., & Morel, O. (2023). ChatGPT: The next frontier in academic writing for cardiologists or a Pandora's box of ethical dilemmas. *European Heart Journal Open*, 3(2). <https://doi.org/10.1093/ehjopen/oead007>
- Pablo, J. C. I., & Lasaten, R. C. S. (2018). Writing difficulties and quality of academic essays of senior high school students. *Asia Pacific Journal of Multidisciplinary Research*, 6(4). <http://www.apjmr.com/wp-content/uploads/2018/08/APJMR-2018-6.4.06.pdf>
- Pangket, W. F., Pangesfan, S. K. K., Cayabas, J. P., & Madjaco, G. L. (2023). Research writing readiness of graduate students in a Philippine State College. *International Journal of Learning, Teaching and Educational Research*, 22(4), 141–159. <https://doi.org/10.26803/ijlter.22.4.9>
- Paurillo, P. M. (2019). Research writing ability of senior high school students as perceived by teachers of sampled schools in Quezon City. *PEOPLE: International Journal of Social Sciences*, 4(3), 1788–1800. <https://doi.org/10.20319/pijss.2019.43.17881800>
- Pinch, T. J., & Bijker, W. E. (1984). The social construction of facts and artefacts: Or how the sociology of science and the sociology of technology might benefit each other. *Social Studies of Science*, 14(3), 399–441. <https://doi.org/10.1177/030631284014003004>
- Qasem, F. A. A., & Zayid, E. I. M. (2019). The challenges and problems faced by students in the early stage of writing research projects in L2,

- University of Bisha, Saudi Arabia. *European Journal of Special Education Research*, 4(1). DOI: 10.5281/zenodo.2557036
- Rahman, M., Terano, H. J. R., Rahman, N., Salamzadeh, A., & Rahaman, S. (2023). ChatGPT and academic research: A review and recommendations based on practical examples. *Journal of Education, Management and Development Studies*, 3(1), 1–12. <https://doi.org/10.52631/jemds.v3i1.175>
- Ray, P. P. (2023). ChatGPT: A comprehensive review on background, applications, key challenges, bias, ethics, limitations, and future scope. *Internet of Things and Cyber-Physical Systems*, 3, 121–154. <https://doi.org/10.1016/j.iotcps.2023.04.003>
- Roxas, M. J. D. (2020). Exploring senior high school students' academic writing difficulties: Towards an academic writing model. *International Multidisciplinary Research Journal*, 2(1). <https://doi.org/10.54476/iimrj376>
- Sallam, M. (2023). The utility of ChatGPT as an example of large language models in healthcare education, research, and practice: Systematic review on the future perspectives and potential limitations. *medRxiv (Cold Spring Harbor Laboratory)*. <https://doi.org/10.1101/2023.02.19.23286155>
- Saygın, D. A., & Kabakçı, A. D. A. (2023). The use of controlled artificial intelligence as a co-author in academic article writing. *European Journal of Therapeutics*. <https://doi.org/10.58600/eurjther1801>
- Setargew, K. (2006). The social construction of technology: Media's role in "Disturbing" the stabilization of Finchaa's ethanol-kerosene blend ('K-50'). *Ethiopian Journal of Economics, Ethiopian Economics Association*, 10(2), 103–103. <https://doi.org/10.22004/ag.econ.249859>
- Shoufan, A. (2023). Exploring students' perceptions of ChatGPT: Thematic analysis and follow-up survey. *IEEE Access*, 11, 38805–38818. <https://doi.org/10.1109/access.2023.3268224>
- Totto, P., & Ramos, A. B. (2021). Reading and writing performance of senior high school students. *International Journal of English Language Studies*, 3(9), 9–22. <https://doi.org/10.32996/ijels.2021.3.9.2>
- Willing, N. (2024, March 15). Top 10 most popular AI tools that you need to use in 2023. *Techopedia*. <https://www.techopedia.com/top-10-most-popular-ai-tools>
- Yang, H. J. (2018). Efficiency of online grammar checker in English writing performance and students' perceptions. *Korean Journal of English*

Language and Linguistics, 18(3), 328–348.
<https://doi.org/10.15738/kjell.18.3.201809.328>

Zhou, Hanzhi (2022). Generative artificial intelligence: A social construction of technology perspective. Retrieved from https://libraetd.lib.virginia.edu/downloads/00000095j?filename=Zhou_Hanzhi_STS_Research_Paper.pdf