

**International college students' perceptions of using ChatGPT
in producing academic essays**

by

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Abstract

The rise of Generative Artificial Intelligence (GAI) technologies accessible to everyday users has attracted significant attention, including in education. For instance, ChatGPT attracted over 1 million users in less than a week after its release, marking one of the fastest-growing forms of AI. These technologies have the potential to transform the products and processes of writing, especially those of L2 writers who face challenges with composing. However, scholars and instructors have raised concerns about the potential ethical issues surrounding their use, especially in cases of accusations of cheating or plagiarism. At the same time, less is known about the perspectives of students, including international and L2 students, who have the most to lose in instances of accusations of lack of academic integrity or plagiarism.

To respond to this gap, my study uses sociocultural theory to examine multilingual university students' perceptions of ChatGPT as a scaffold for writing academic essays. Participants were 11 international students enrolled in a developmental composition course for undergraduate L2 writers at a mid-sized U.S. university in the Midwest. Data collection included a classroom intervention utilizing ChatGPT, a pre-intervention questionnaire, a post-intervention questionnaire, and semi-structured interviews. Overall, findings include that these students' perceptions are divided, and individual students may be torn about how useful ChatGPT is. Specifically, in various areas, students rated ChatGPT as less helpful than what other scholars have found (e.g., word-, sentence- and some discourse-level scaffolds; Sumakul, 2023). Additionally, students' perceptions of using ChatGPT as a scaffold were not as positive as getting feedback on their writing from a peer. However, students also became less concerned about the accuracy and trustworthiness of ChatGPT after being exposed to it. Theoretical and pedagogical implications are discussed.

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Dedication

I dedicate this work to my late mother, Judith Kerubo Mosoti. You taught me to always do good and work hard no matter what. You would have celebrated this milestone with me. Rest in peace,

“Mama.” You were my greatest cheerleader!

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List of Abbreviations

GAI-Generative Artificial Intelligence

AI-Artificial Intelligence

L2-Second Language

GPT-Generative Pre-trained Transformer

ChatGPT-Chat Generative Pre-Trained Transformer

ZPD-Zone of Proximal Development

CMCW-Computer-Mediated Collaborative Writing

LLM-Large Language Model

TOEFL-Test of English as a Foreign Language

GRE-Graduate Record Examination

EFL-English as a Foreign Language

Gen- Generation

Introduction

The rise of Generative Artificial Intelligence (GAI) technologies accessible to everyday users has garnered significant attention, including in education. GAI chatbots have attracted many users quickly. For instance, ChatGPT attracted over 1 million users in less than a week after its release (Mollman, 2022), marking one of the fastest-growing forms of AI. While ChatGPT can be used for a wide range of purposes, it has particular potential for revolutionizing writing processes and products, including those of Second Language (L2) writers (e.g., Yan, 2023). L2 writers, who draw from many linguistic repertoires, face challenges with composing; thus, ChatGPT, which is readily available, can be a place for L2 writers to practice in relation to their needs (Thorp, 2023). For instance, ChatGPT can provide feedback on a student's work in the form of dialogue (Haleem et al., 2022; Birenbaum, 2023); text translation, grammar correction, and vocabulary (Gouvi et al., 2023); content organization (Marzuki et al., 2023); and even the production of writing prompts (Barrot, 2023), which teachers and learners could use. Therefore, students and teachers alike have begun to use these tools in writing processes and in evaluating writing (Jukiewicz, 2024).

Despite the increase in the amount of scholarship surrounding different aspects of AI in education, little is known about the perspectives of students, including international and L2 students, who have the most to lose if GAI technologies are misused or misunderstood in teaching and learning, for instance, in potential accusations of lack of academic integrity or plagiarism. To respond to this gap, the present study takes up sociocultural theory (Vygotsky, 1987) to examine multilingual university students' perceptions of ChatGPT as a scaffold for writing academic essays.

Literature Review

This study uses sociocultural theory's concept of scaffolding. Scaffolding can be understood as providing support to a student through social interaction and guided assistance that helps them bridge the gap between their current mental ability and the desired learning outcomes (Vygotsky, 1987). In this section, I will explain what scaffolding means for second language learning, including L2 writing, and mention how mediation is a core construct in these processes. I will examine how existing research uses three main types of scaffolds in L2 writing: peer support, literacy scaffolds, and computer-mediated writing. Since my study looks at students' perceptions of ChatGPT, a form of AI, in writing as a potential scaffolding tool, I begin by defining scaffolding, mediation, and perception as the core concepts. Finally, I will discuss how my research seeks to expand on how international students perceive the use of ChatGPT in producing academic essays.

Defining Mediation and Scaffolding in L2 Learning

The central concept of sociocultural theory is that higher forms of human mental activities are mediated. Vygotsky (1987) argues that humans act directly in the physical world with the mediation of tools. These tools can be physical or symbolic, such as a piece of paper and a pen, a diagram, a chart, or a complex computer program created by humans and, over time, these tools are made available and often modified before they are passed down to future generations, forming established mediated relationships that will help the brain to remember or think.

Mediation is useful to an individual's or group's Zone of Proximal Development (ZPD), that is, the distance between what learners can do on their own and what they can only do with

guidance from a more skilled person or mediation tools (Lantolf, 2000; Shabani et al., 2010; Thomas, 2005; Lantolf & Aljaafreh, 1995).

Scaffolding in L2 learning refers to the supportive interaction provided by a more knowledgeable person, which enables a learner to independently perform tasks that are higher than their current cognitive ability (Chang et al., 2002; Lantolf & Poehner, 2014; Walque, 2006). In other words, Raymond (2000), and Richards and Schmidt (2002) put it as a process of making a novice learner successful in tasks that are beyond their cognitive abilities with support from a more knowledgeable other who gradually pulls back their support, leaving the learner to become competent in doing the tasks without any support. In this way, second language learning is a socially mediated process, and this mediation regulates cognitive processes.

The concepts of mediation and scaffolding are relevant for this study because scholars have suggested that computers can be considered interactive tools for mediation (Yeh et al., 2011), and AI offers unique kinds of mediation (perhaps even “social” mediation) and scaffolding.

Peer review/Support as a Scaffold in L2 Writing

Many studies have examined the outcomes of peer review and/or peer support in L2 writing. Scholars report that when students work in pairs, both members of the pair benefit from each other's support (Altstaedter et al., 2014; De Guerrero & Villamil, 2000; Hanjani & Li, 2014; Mangelsdorf, 1992; Teo, 2006; Warwick & Maloch, 2003). For instance, DeGuerrero and Villamil (2000) reported that students who work collaboratively in revising a narrative text written by one of them (one as reader, one as writer) will benefit from the task. Additionally, participants in Hanjani and Li (2014) revised their argumentative written texts jointly and collaboratively. Both participants benefitted from the joint revision regardless of their level of L2 writing proficiency by using each other's knowledge and strengths in producing better-quality

text based on their instructors' comments. Also, ESL students in Mangelsdorf (1992) reported that peer reviews helped them to revise the contents of their drafts, and they became good critics of each other's work. However, the same scholar reports that some students pointed out that some peer feedback was not useful; in particular, feedback that was more careful and gentle (like from a good friend) was considered less useful.

Scholars have also reported that students in L2 composition classrooms found peer review effective and socially enjoyable because of the presence of the actual audience (Chang, 2014; Mangelsdorf, 1992; Mendonca & Johnson, 1994; Tang & Tithecott, 1999; Tsui & Ng, 2000). However, it should be noted that peer feedback used in peer review is a complementary source of feedback and not a replacement for teacher feedback (Caulk, 1994; Lee, 2015; Tsui & Ng, 2000). For example, in Lee's (2015) study, participants indicated that having both peer and teacher feedback promotes high-quality feedback and collaborative learning.

Literacy Scaffolding in L2 Writing

For the purposes of this thesis, I consider literacy scaffolds to be broadly defined, for instance, to include interactive and social scaffolds such as oral scaffolds. For that reason, "literacy scaffolds" and "language scaffolds" are used interchangeably in this paper.

Literacy/ language scaffolds can help in constructing grammatically correct sentences and ensure that ideas are arranged logically in a text. Boyle and Peregoy (1990) state that literacy/language scaffolds are of two varieties: those that use sentence patterns and those that use discourse patterns. Scaffolds that use sentence patterns include cloze tests, substitution tables, and structured sentence frames. On the other hand, scaffolds that use discourse patterns are graphic organizers and even story mapping. These language scaffolds support each other in writing (Boyle & Peregoy, 1990). For example, teaching grammar (as a form of language

scaffolding) does not merely emphasize grammar skills at the sentence level but emphasizes grammar practices beyond the sentence level to the targeted academic written discourse.

More recently, Liang (2007) conceptualized language scaffolds in writing instruction as including “contextual awareness, model analysis, controlled and guided practice, collaborative construction of the text, and independent writing” (p. 71). For instance, Hyland (2003) notes that model analysis activities in a writing class include reading and analyzing model essays, paragraphs, and language key features and choosing the best grammar forms to use in completing a text. Overall, literacy and language scaffolds support L2 writing through structured frameworks that enhance correct grammar and logical organization of ideas in the writing process.

Computer-mediated Collaborative Writing (CMCW) in L2

Computer-mediated writing integrates digital technologies into the writing process, with tools such as wikis, Google Docs, offline processors, and Facebook chats being used as potential scaffolds in L2 writing. Driven by the affordances of technology and writing, CMCW has gained potential interest in L2 contexts for interactive feedback and producing joint texts (Zhang & Zou, 2021). Li (2018) argues that effective grouping and task design will ensure that students are actively participating and contributing equally to the workload. Because of this, Li (2018) recommends training students to use these tools to help them navigate them better and understand the tools’ roles in collaborative writing. Zhang and Zou (2021), Çiftçi and Aslan (2019), and Zhang, Gibbons, and Li (2021) indicate that CMCW in L2 contexts enhances interaction and collaboration, improves writing quality, and improves individual writing development. Learners also found the writing process more enjoyable. However, Çiftçi and Aslan (2019) noted a lack of co-responsibility among group members during group work and other concerns, such as the reliability of the tools in supporting L2 writing.

Using AI in L2 Writing

Although ChatGPT has not been available to the public for long, scholars have already discussed AI's potential benefits and pitfalls in L2 writing. First, ChatGPT (a form of Open AI 2023) is an Artificial Intelligence (AI) model that is pre-trained to produce text depending on large language models (LLM) in a dialogue manner. Therefore, it is a readily available and dependable writing tool that can be a place for L2 writers to practice and get feedback related to their needs (Thorp, 2023). For instance, Haleem, Javaid, and Singh (2022) and Birenbaum (2023) indicated that ChatGPT responds to student questions regarding L2 writing and provides feedback in the form of a dialogue. In these dialogues, AI gives examples of language for students to practice with, and it uses a range of writing constructs like pragmatics, semantics, coherence, cohesion, conventions, language style, format, grammar, and syntax (Barrot, 2023). According to preference, ChatGPT can also offer specific writing format styles, such as APA, MLA, and Chicago (Barrot, 2023).

Scholars have raised some potential pitfalls concerning students using AI tools to produce writing (Barrot, 2023). For instance, Rudolph et al. (2023) report that ChatGPT does not capture aspects of human writing qualities such as emotional depth, writing voice, identity, and distinctiveness. Sometimes, it gives unrelated, inaccurate, or nonexistent bibliographic information. Additionally, Zhang et al. (2024) point to concerns such as the cost of some AI tools, AI hallucinations, whether users are using AI carefully or not, and the tone of some AI feedback. All of these could negatively influence the writing that students produce.

ChatGPT and Evaluating L2 Writing

Just as students have begun using AI to *produce* writing, instructors have also used it to *assess* students' writing. Dai et al. (2023) report that ChatGPT can automatically grade students'

work based on predefined criteria and provide specific comments to support the assigned score. Additionally, Jukiewicz (2024) reported that in a class where both the teacher and ChatGPT were used to grade students' work, the teacher's grades were higher than those generated by ChatGPT. Nevertheless, the grades were specific, quick, and unbiased.

To-date, there are conflicting results regarding whether GPT detectors are biased against non-native English writers. For instance, Weixin Liang et al. (2023) reveal disparities in how GPT detectors classified two types of essays: 8th grade essays from native English speakers and TOEFL essays by non-native English speakers. The 8th grade essays were classified as non-AI, while over half of the TOEFL essays were classified as AI-generated. However, when Jiang et al. (2024) developed multiple AI tools to classify GRE essays written by native and non-native English Speakers, they found no evidence of biases against non-native English speakers. Also, Chaka (2024) evaluated 30 AI detectors that could be used to identify whether essays were written by AI or humans. Using essays written by both English L1 and English L2 students, results indicated that none of the 30 AI detectors tended to have a bias toward any of the essays.

Taken together, these studies indicate that while there is evidence of bias in some GPT detectors against non-native English writers, like the one by Weixin Liang et al. (2023), other studies by Jiang et al. (2024) and Chaka (2024) offer unbiased assessments.

AI in Improving L2 Writing

AI can be used purposefully and systematically in L2 writing instruction because it encourages effective writing practices and quality output among students. For instance, Al Mahmud (2023) investigated to what extent Wordtune (a form of AI) facilitated Saudi students' writing, and results showed that students who used Wordtune surpassed those who did not through upgraded writing in terms of concrete nouns, adjectives, verbs, complex phrases and use of complex sentences. Also, Gouvi, Lavidas, and Komis (2023) studied the effects of using

ChatGPT to improve L2 writing in terms of vocabulary and grammar. Findings indicated an increase in the total number of words, unique words, and the average number of words in a sentence. Additionally, scholars have found that AI writing tools such as Quillbot, Wordtune, Jenni, Chat-GPT, Paperpal, Copy.ai, and Essay Writer may result in significant improvement in EFL students' essays in terms of content and organizational skills (Marzuki et al., 2023). This is important because L2 students, who draw from many linguistic repertoires, find organizing their content and thoughts challenging when writing essays (Barrot, 2018; De Smet et al., 2012).

Additionally, Warschauer et al. (2023) highlighted the steps teachers can take when using ChatGPT in L2 writing instruction. Specifically, they suggest beginning by asking the students to select a topic and brainstorm it with their peers. Further, you can ask the students to use ChatGPT to generate additional responses by finding model texts and examining structural features. After that, the student should do preliminary research on the topic and create an outline. To avoid restricting students' creativity and critical thinking, you may ask the students to use ChatGPT not only to refine the initial outline but also to write their essays using reputable sources and incorporating personal experiences, critical reflection, and writing voice; thus, at this stage, ChatGPT should not be allowed, but after they are done writing they may use ChatGPT to receive feedback on content, organization, and structure.

In general, integrating AI tools like ChatGPT in L2 writing can enhance the students' writing by offering support that encourages correct grammar, vocabulary use, and content organization. Students can also enjoy personalized and reflective learning by themselves.

Perceptions of Students and Instructors vis-a-vis AI in L2 Writing

In education, students' and teachers' perceptions of emerging trends are key factors in determining whether the trends will be successfully integrated into classrooms (Marwan &

Sweeney, 2010). Although the field of psychology has many in-depth theories to understand the concept of perception, this paper takes up a simple definition: “Perception refers to the way sensory information is organized, interpreted, and consciously experienced” (Carroll, n.d.).

In terms of teacher’s perceptions of technology in general, Gorder (2008) reported that teachers who use technology regularly in their classrooms perceive it as a good resource for teaching. Turning to AI, Sumakul et al. (2022) reported that EFL teachers unanimously agreed that students enjoyed using a free web plot generator that positively improved their students' writing quality, especially by providing L2 writers with assistance on their grammar and idea generation. In one incident, one participant stated,

AI writing tools have been instrumental in boosting student creativity and providing suggestions and expanding on initial ideas when students get stuck or encounter writers block, these tools can propose different angles or perspectives, assisting them in overcoming creative hurdles.... (Sumakul et al., 2022, p. 55)

Additionally, Hartono et al. (2023) reveal positive perceptions towards AI in English language teaching, with teacher participants highlighting improved language skills and the provision of personalized instruction as an adaptive nature of AI and its ability in offering immediate feedback.

Also, students’ perceptions of technology should be addressed, in particular the perceived ease of use and usefulness of the technology. Sumakul et al. (2022) examined students’ experiences in using AI apps in L2 writing. Findings indicated that the students enjoyed learning with assistance from the AI with grammar and vocabulary, the understanding of the theoretical concepts that were needed for their writing, and the extreme ease of use of the AI app. Chan and Hu's (2023) findings suggest that student participants positively perceived integrating ChatGPT in their writing with support in brainstorming and research. However, more than half of the

participants in this study had concerns about integrating GenAI technologies. They cited concerns related to reliability (accuracy and transparency), privacy and ethical issues, and AI's lack of emotion and humanity.

It should be noted that generational differences may influence perceptions and ultimate adoption of technology. For instance, Chan and Lee (2023) studied Gen Z, Gen X, and Gen Y perceptions of using Generative AI in higher education. They found that Gen X and Gen Y teachers acknowledged the potential benefits of AI but cited concerns about overreliance and ethical and pedagogical implications; they emphasized the need for proper guidelines and policies to ensure responsible use of technology. On the other hand, Gen Z students were optimistic about the potential benefits of AI, citing enhanced productivity, efficiency, and personalized learning, and they expressed intentions to use Gen AI for various educational purposes (Chan & Lee, 2023).

In short, scholarship to date has found that teachers perceive AI as a beneficial tool for enhancing student creativity and providing valuable assistance with grammar and idea generation, although they express concerns about overreliance and ethical implications. Additionally, researchers report that students generally have positive perceptions of AI technology, appreciating its ease of use, support in writing, and potential for personalized learning despite concerns about reliability and privacy.

Research Questions

Although there has been a considerable amount of research into how AI has the potential to transform the writing processes of academic essays in general (e.g., Yan, 2023), additional research is needed, including how students perceive the use of GenAI (ChatGPT) in producing essays. The principal objective of this study is to understand multilingual international students'

perceptions of using ChatGPT, both before and after using it to write academic essays. In pursuit of this objective, the study addresses two research questions:

1. **Before** using ChatGPT in a college composition classroom setting, in what ways do multilingual international college students perceive ChatGPT *may influence* their writing process?
2. **After** using ChatGPT in a college composition classroom setting, in what ways do multilingual international college students perceive ChatGPT *has influenced* their writing process?

Methods

This section describes my research, detailing each phase from design through analysis and findings. It encompasses an overview of the research setting and participants, data collection and analysis, and trustworthiness. It also features a statement of positionality and my role in research, and a discussion of ethical considerations.

Research Setting and Participants

Data for this study was collected at a mid-size university in the Midwest, serving a regional population. In the recent past, the university has received a growing international student population. As of the 14th day of the fall semester of 2023, international student numbers had increased significantly from the previous years. For instance, in fall 2021 there were 1810 international students at the university, and in fall 2023 there were 2468. These students primarily come from Nepal, India, Spain, Ghana, Bangladesh, and Iran.

The participants for this study were 11 international students in ENGL 1509, a developmental composition course for students whose mother tongue is not English and who did not test high enough to be enrolled in the university's first English composition class. This is the

course that I was assigned to directly teach in the 2022–2023 academic year. The students majored in psychology, art, business administration, information technology, computer science, and nursing.

Of the 11 participants, six were women, and five were men. Their ages ranged from 18-24 years. In addition to English, the participants spoke between two and five other languages (including their mother tongue language[s]). All participants had been in the US for less than a year. Only one participant reported strong spoken English, and only two reported strong written English. The participants reported studying English between four and 23 years. Three students reported having lived in a country where English is an official language or where English is widely used for four months, while others reported between two and 19 years in such settings. One had lived and interacted with English his entire life. Five of the 11 students considered themselves native speakers of English, although the “native/non-native” distinction did not fall along country lines. All participants from Nepal and one from Ghana considered themselves native speakers, whereas all participants from Iran and one from Spain considered themselves non-native English speakers. Table 1 provides an overview of the participants' demographic data.

Table 1*Participants' Demographic Data*

Gender/Age	Nationality	Language(s)	Major	Age of US arrival	Years studied English	LOR in country that uses English*	Considers self native-English speaker
F19	Nepal	Nepali English	Psychology	18	16	19	Yes
F21	Iran	Farsi Turkish English	Psychology	21	11	4 months	No
M21	Spain	Catalan Spanish English French Italian	Art	16	15	2	no
F18	Ukraine	Russian	BA	18	7-8	0	No
M21	Bangladesh	English Bangla Hindi	IT	21	15	N/A	Yes
F24	Iran	Persian Turkish English	BA	No response	4	4 months	No
M19	Nepal	Nepali Hindi English	Comp science	19	12	12	Yes
F19	Nepal	Nepali Hindi English	Nursing	19	17	17	Yes
F21	Iran	Persian English	BA	No response	7	4 months	No
M23	Ghana	Twi Ga	Nursing	21	23	23	Yes
M20	Nepal	English Nepal	Civil Engineering	20	12	12	Yes

Data Collection and Research Design

This study took up a mixed-method approach to examine the participants' perceptions of using ChatGPT in writing academic essays. The mixed method approach involves an integration of qualitative and quantitative data (Creswell, 2014). Data collection consisted of five phases: a pre-classroom intervention questionnaire and collection of demographic information, a classroom intervention, a post-intervention questionnaire, and semi-structured interviews.

Questionnaires

Questionnaires are suitable for measuring several independent variables, including facts, preferences, and behaviors (Rose, McKinley, & Baffoe-Djan, 2020). They were chosen for this study for their suitability in eliciting perceptions. The pre-and post-intervention questionnaires had the same questions, except for the post-intervention questionnaire asked, "Did you finish all the writing process steps while using ChatGPT?" Therefore, the pre-intervention questionnaire had 15 questions, and the post-intervention questionnaire had 16. Responses were collected via a Likert scale with seven options (*0= I don't understand this question, 1=Strongly Disagree, 2= Disagree, 3= I Slightly Disagree, 4= I slightly Agree, 5= Agree, 6= Strongly Agree*). The pre-intervention and post-intervention questionnaires were administered before and after the classroom intervention as described immediately below.

Classroom Intervention

A classroom intervention with ChatGPT was used, with standardized instructions described below. The in-class intervention was in two sessions:

In **session one**, the teacher-researcher discussed machine learning in teaching and composition writing with the class, focusing on ChatGPT. The teacher-researcher illustrated how

ChatGPT works and guided the students on how to give it prompts. The teacher-researcher told the students to download ChatGPT to their computers or phones.

In **session two**, the researcher informed the students to use Chat GPT, which they had downloaded in the previous session, as a writing aid for an essay assignment during class. The essay prompt was: *Write an essay explaining the process of making your favorite cuisine. This should be one that you personally know how to cook, the ingredients, and the procedure for making it.* The essay writing unfolded in multiple steps, with the teacher-researcher setting intervals for the students on when and how to use ChatGPT in writing the essay.

The process was as follows:

- a.) Students were prompted to write a first paragraph, enter it word-for-word into ChatGPT, and then ask ChatGPT to evaluate their thesis statement, e.g., “ChatGPT, what is the thesis statement for this paragraph and how good is it?” Students were given 10 minutes to complete this step.
- b.) Next, students were prompted to use ChatGPT to generate ideas about the process of making their favorite cuisine. Specifically, students asked ChatGPT to list, cluster, map out, or highlight the process of making their favorite cuisine. Students were given 10 minutes to complete this step.
- c.) Next, students were reminded that each idea (generated in the previous step) can be one paragraph with one topic sentence. Using the ideas generated by ChatGPT, students were prompted to start writing individual paragraphs based on the ideas generated in the previous step. Students were prompted to use the following steps as they wrote: 1. Write a paragraph. 2. After each paragraph, ask

ChatGPT to give feedback on the paragraph (immediate feedback). Students were given 30 minutes to complete this step.

- d.) When each paragraph of the essay's body was complete, students were prompted to write a conclusion and follow the same process: 1. Write, 2. Ask ChatGPT to offer further suggestions for a concluding paragraph. Students were given 10 minutes to complete this step.
- e.) Finally, students were prompted to subject their entire essay to ChatGPT for proofreading and editing for mechanics. Students were given 15 minutes to complete this step.
- f.) When 1 hour and 5 minutes were up, all students were asked to submit whatever they had completed to the teacher-researcher via email. Even if students had not finished (e.g., had not reached the conclusion or proofreading), they submitted whatever they had finished.

Semi-structured Interviews

Semi-structured interviews provide a framework of questions that allows the researcher opportunities to reflect on the qualitative data in varying depths for each interviewee (Rose, McKinley, & Briggs Baffoe-Djan, 2019). The flexibility in the semi-structured interview allows for new ideas to form within the predetermined framework, thus allowing the teacher-researcher to collect more detailed information (Nunan, 1992), which would not be possible with a strictly structured interview. The follow-up probes after the open-ended questions enabled the teacher-researcher to gain a more detailed and in-depth understanding of the participants' responses. Three participants agreed to be contacted for the interview, and two followed through with interviews. The interviews were audio recorded, with the first interview being nine minutes long

and the second being 12 minutes long. They were completed on January 18th and February 2nd, 2024, respectively. The interview protocol is located in Appendix A.

Data Analysis

For the questionnaires, I used descriptive statistics; specifically, I calculated the mean, mode, and median to analyze participants' responses to the pre-and post-questionnaires following a Likert scale scoring system. Interview data were analyzed via thematic analysis (Knott et al., 2022). First, I transcribed the audio recordings and uploaded them into the online data analysis tool Taguette (www.taguette.com). In Taguette, I assigned individual codes to each sentence in the transcript. Then, I exported all coded excerpts along with their codes, printed them, cut them into strips, and laid them on the table to look for commonalities. I re-read the excerpts and arranged them into themes. The findings below are organized by these themes.

Credibility and Trustworthiness

To establish credibility and trustworthiness (Merriam & Tisdell, 2009), this research utilized two forms of triangulation: researcher reflexivity and the use of a small research team. For triangulation, I used qualitative and quantitative data sources. I administered interviews and collected data through questionnaires. As a teacher researching my own students, I reflected on each stage of the research with another researcher during pre-IRB, during data collection and analysis, and at the writeup stages. I also used a research team of three persons: the first person starting consent, the second person issuing and collecting questionnaires, and the third person conducting the classroom intervention and interviews. This reduces the pressure on the students who do not want to participate, and they are free to give any kind of feedback they want to give. Also, the questionnaires were not viewed by the researcher until after the final grades and interviews were done.

My dual role as teacher and researcher in the classroom, however, posed a potential limitation as the familiarity with the context might have obscured certain aspects, making it challenging to approach the research with entirely "new eyes." The intricate balance between being a teacher and a researcher requires careful consideration of ethical implications. To address this, specific measures were implemented to ensure the protection and confidentiality of students. A research assistant collected consent forms crucial for ethical research practices, ensuring that the participants felt secure in recording their consent or non-consent. She also distributed and collected the pre- and post-questionnaires.

Researcher Positionality

For this research endeavor, I, an international student, hold dual positionalities as both a teacher and a researcher. I am a woman who comes from a multilingual background and use English as a medium of instruction alongside Swahili as an official language and other native languages. As a student in secondary school, I wrestled with writing lengthy essays in English because it was time-consuming and monotonous, as I was accustomed to accessing English via Swahili, which I in turn accessed via my mother tongue. This process took me a long time to generate essays in English. Coming to the United States for my master's opened my research intentions in the field of L2, specifically L2 writing, after being assigned a developmental composition class for international students for one academic year. Observations and interactions revealed that these students had challenges developing lengthy essays and showed worries about the minimum word count in their essays, similar to my experience generating lengthier essays. This unique position provided me with insider insights that an external researcher might lack. As the teacher, I had firsthand experiences witnessing the challenges these students faced in developing lengthy essays, particularly in meeting minimum word count requirements.

Findings

This chapter describes the international students' perceptions of using ChatGPT in their composition writing. Drawing upon data gathered through interviews and questionnaires, the chapter sheds light on the experiences and viewpoints of students engaging with AI in producing academic essays. This chapter analyses both the interviews and questionnaires.

Interview Findings

This section unveils diverse participant viewpoints within two overarching themes: the contexts and purposes for AI use (academic and non-academic) and special considerations and recommendations for the utilization of ChatGPT. Within the academic realm, a dichotomy of perspectives becomes evident, with Albert reportedly having a positive stance toward using AI in both academic and non-academic settings. At the same time, readers will see that Pedro reports reservations, particularly within the context of his major. In non-academic contexts, participants report purposeful use of AI, revealing positive motivations and benefits. Through these interviews, we gain insights into students' perceptions of ChatGPT as a scaffold in academic writing and beyond.

Theme #1: Contexts and Purposes for AI Use

This theme emerged as participants described the specific situations in which they choose to employ AI assistance, as well as the purposes and goals they hope to achieve through its application. As described in more detail below, in the academic domain, the participants focused on integrating ChatGPT into their essay writing process, including its role in idea generation for essays, overcoming academic challenges (e.g., writing and preparing for tests), and potential conflicts with academic principles. Additionally, the participants shared scenarios for ChatGPT use in non-academic settings, providing insights into how students purposefully employ ChatGPT for creative, personal, or recreational endeavors.

AI Use in Academic Contexts. Related to using AI in academic contexts, the participants generally expressed differing opinions. Overall, Albert expressed primarily positive perceptions of using ChatGPT in academic work, and Pedro expressed reservations about its use. The one point on which they expressed agreement was that ChatGPT can help in generating ideas for longer essays. For instance, Albert stated,

"Because it's giving you more ideas which you didn't have...So ChatGPT kind of gave you more information that you didn't have." (February 02, 2024)

Pedro expanded on those ideas with,

"As a non-native speaker, what I feel it's if you run out of ideas it's because like you don't know what else to write. If you have an essay and it's like really short, it's because you have not to express what you really think and putting your thoughts in a longer paragraph. But at the same time, if you use ChatGPT since it is in English already. It can help you write a longer essay. And because it's giving you more ideas which you didn't have or like. I don't know how to describe it. But you know what I mean, right, like. I realized that my paragraph, like I don't know, was like 10 lines and then I'll key it in ChatGPT and say write about this and like the program will be way longer. So that's why it's because I either didn't know how to make it longer, or so ChatGPT kind of gave you more information that you didn't have. (January 18, 2024)

Here, Pedro expresses that for a non-native speaker, it is hard to come up with ideas, maybe because of the need to translate L1 to English; therefore, he imagines ChatGPT providing good language support since it is already in English. Although he does not use the term "translation," it appears he is pointing to ChatGPT being a useful tool because it does provide

translation, in a sense (i.e., because it is already in English). Further, Pedro appears to believe that ChatGPT will give more ideas for a lengthier essay by giving an example of having a ten-line essay and ChatGPT producing something longer. However, Pedro does not say whether the quality will be better or not; thus, he is stating that ChatGPT gives the information you do not have before using ChatGPT.

Interestingly, this is a positive perspective in comparison to most of Pedro's other perceptions of ChatGPT. For instance, in one case, he reported that his discipline discouraged the use of AI; in another, he reported that he felt AI hindered learning. Pedro stated,

“There is something we're told, and in our major, it is to use our mind and develop ways to create and imagine things that we can do to create art, so I didn't see why I would use it.” (January 18, 2024).

Although Pedro does not explicitly say he was discouraged to use AI by a professor, as was the case in Marzuki et al. (2023) where one participant warned that students can overly become dependent on AI tools slowing learning, it is clear that he believes his discipline would prefer students to develop ideas themselves, instead of with AI. Additionally, he reported,

Basically, if you have to write an essay for an English class, it's for you to learn how to write in English. ... So if we're here to learn, not to copy so because everyone can do that. (January 18, 2024)

In this quote, Pedro is putting forward the idea that AI is a form of copying and, if AI is used for academic purposes, it means a student is not really learning.

As stated above, Pedro's and Albert's perspectives differed. Albert emphasized that AI has become a support system in his education. He clarified that he uses it selectively, primarily when he lacks ideas for assignments, stating,

"... it is being a support system to my education system...I only use it when I don't have any idea about whatever I have to do." (February 02, 2024)

However, he also highlighted the importance of rephrasing and writing in one's own words to avoid potential issues related to plagiarism. He stated,

*"For some courses that you don't have to do with AI, you can still search with your AI, getting the ideas and writing it on your own, with your own ways."
(February 2, 2024)*

In this way, he emphasizes that the tool serves to provide initial ideas that he can then rephrase and develop in his own words.

Also, Albert shared his evolving approach to AI usage in academic writing. Initially, he admitted to copying everything AI provided. For instance, he said,

"Before we learned about AI in our class, first I used to copy everything...I got to learn that you don't copy everything that the AI gives to you because it's not yours." (February 2, 2024)

Here, Albert is referring to the ENGL 1509 course, in which students received direct instruction about using ChatGPT and discussed ethical questions surrounding its use. After learning about proper AI use in the course, he shifted to extracting ideas from AI and rephrasing them, understanding AI as a source of inspiration rather than a source of direct answers.

Finally, Albert highlighted how he uses AI in dealing with coursework in his nursing major.

"Ohh yeah yeah, so after my English class, you know my courses are one of the courses that have many terms that you have to get in your mind and unfortunately,

I don't have the books that are learned, so on that side, I solely depend on the AI for explanation and clarification on terms." (February 2, 2024)

In this quote, “my courses” refers to classes in the nursing major. Here he mentioned relying on AI for explanations and clarifications on complex terms in his courses. This underscores his perception of the tool's role in providing support and facilitating understanding in specialized academic contexts.

AI Usage in a Non-Academic Context. For this theme, participants shared their purposeful use of AI in non-academic realms. They shared primarily positive perceptions, motivations, and benefits associated with applying AI in non-academic contexts.

First, Pedro shared that he used ChatGPT for a wide range of purposes. For instance, he mentioned using ChatGPT to help his girlfriend’s mom expand upon a welcome speech she was going to give.

"I used it more in a serious context, which was an event that I had with my girlfriend and her family. So, her mom had to do a welcome speech, and she didn't have many ideas, and she wanted the speech to be longer." (January 18,2024)

This quote highlights the tool's application in creative and personal settings beyond academic purposes. Interestingly, the function/purpose was similar to what Pedro and Albert described for academic purposes: creating a longer text. This quote also reflects Pedro’s positive perception of ChatGPT in a non-academic context. This is different from his perceptions of using ChatGPT in an academic context, where he reported to not seeing why he would use AI in academic setting but rather viewed it as a form of cheating.

Pedro also shared an interesting anecdote about the influence of AI during Christmas in Spain, when a large lottery takes place. Lottery players asked AI to generate potential winning

lottery numbers, and AI provided the same number to many players. This resulted in a rush to buy tickets with that number.

"During Christmas in Spain, there's a huge lottery prize, and people were asking AIs' to generate what will be the winning number. The AI somehow managed to do a number, and people who got that number went to the store, and they were sold out of all the numbers within two hours because an AI-generated." (January 18, 2024)

Although Pedro did not relay that *he* used AI to participate in the Christmas lottery, in this quote, he shows that he is aware of ways that AI might be used creatively outside of academic contexts. Interestingly, his anecdote also showcases the potential impact of AI on traditional events and cultural practices.

Additionally, Pedro shared instances of using AI for fun, such as predicting soccer match results.

"I use it for fun with my brother. Sometimes we talk about it and say, see what AI says, like, the other day Barcelona, the soccer team, was playing. We kind of like, generate like... what would be the result and it was not even close because Barcelona was gonna win and they lost. So are we gonna use it for fun" (January 18, 2024)

This recreational use suggests that AI provides entertainment and enjoyment for Pedro and his brother in non-academic contexts.

Similarly, Albert mentioned using AI beyond educational contexts. He highlighted its utility for obtaining information about various topics unrelated to school.

"Yeah, outside my education. I think I've been using it a couple of times for other standards not related to my school. Sometimes, I can see something somewhere that I don't understand, and I need to get clarification about it, and I just go on there and search about it." (February 2, 2024)

This quote reflects a broadening of AI usage in Albert's life, extending its influence into various aspects of his life beyond academic requirements.

Overall, in Theme #1, we see Pedro's and Albert's diverse purposes for using AI in both academic and non-academic contexts. In academic contexts, both highlighted the tool's role in generating more ideas for expanding upon their writing, but they never mentioned how AI influenced the quality of essays. Pedro expressed reservations about using AI in disciplines that emphasize creativity and imagination, such as art and photography. Albert, in contrast, initially admitted to copying everything AI provided but later adjusted his approach, using AI as a support tool for generating ideas. Albert's experiences in using ChatGPT in his nursing courses emphasize AI's supportive role in understanding complex terms. In non-academic contexts, Albert and Pedro shared their diverse motivations for using AI, ranging from searching for information (similar to how dictionaries or the internet might be searched), speech-writing, and recreational entertainment.

Theme #2 Special Considerations and Recommendations for the use of ChatGPT

In this theme, participants shared their reflections on the potential drawbacks, ethical concerns, and unique considerations associated with using ChatGPT, based on their personal experiences. In particular, they spoke about concerns surrounding the accuracy and reliability of this AI tool, potential ethical dilemmas related to academic integrity, and the balance between relying on AI vs. personal learning efforts. Furthermore, participants shared recommendations and insights regarding the responsible use of ChatGPT.

Concerns Regarding the Use of ChatGPT. Participants voiced various concerns related to their experiences with ChatGPT, in particular highlighting potential drawbacks and ethical considerations for its use in academic work. For instance, Albert shared a concern about the accuracy and reliability of an older version of AI that he used in the past. He reported,

"I got to a point in time when I was using only that form in the test, and every day, I got some of the questions wrong, and I was like how is it possible?" (February 02, 2024)

In other words, Albert noticed discrepancies in the answers provided by the AI tool he was using to complete tests, leading to doubts about the tool's precision. Interestingly, since beginning to use ChatGPT, those doubts had lessened, as he expressed feeling that ChatGPT was a more reliable tool (February 2, 2024).

On the other hand, Pedro raised ethical considerations, suggesting that using ChatGPT to generate academic essays is cheating. He stated,

"...like a 8 year old can jump on ChatGPT and write an essay about a college level and he can get an essay. Is that kid smart enough to write like a 20 year old? I don't think so, but well, maybe he is. Mm-hmm. But I think it's just cheating."
(January 18, 2024)

In this way, Pedro underscores the importance of genuine effort in the learning process, unlike when a young learner could use AI to produce content without truly understanding the subject matter.

Relatedly, Albert discussed the need for balance in using ChatGPT for academic writing. He emphasized the importance of not depending on AI entirely in his writing, with the following,

"I'm trying to balance it with how to learn, and I know I have to work on the usage of the AI so that it doesn't be 100% in everything that I do." (February 2, 2024)

He expanded on this idea of balance when he expressed apprehension about over-reliance on ChatGPT. For instance, he expressed,

"I feel if I keep on relying on it, I will be lazy. Because just like I said, my class keeps on getting tough and harder...I know that if I keep on relying on it, 100% is going to affect me academically... But just like I said, after it saves your time, it also keeps you from learning, which is the bad side." (February 2, 2024)

In these quotes, Albert recognized there is a risk that AI use could hinder personal learning and academic growth, raising concerns about its role in making users lazy and hindering genuine understanding, yet he acknowledged the tool's time-saving benefits, as mentioned earlier in this paper. However, Albert also shared that he felt using ChatGPT was not a form of cheating, as long as the course instructor has not prohibited it. He commented,

"So far as the courses that don't say you cannot do this question with AI, I don't think it's cheating. Because I still have to take time in typing the question to get the answer." (February 2, 2024)

Interestingly, here he makes an argument that using AI is not cheating because the tool requires effort in formulating and typing questions to obtain answers.

On the other hand, Pedro expressed a broader concern about society's potential overreliance on AI for various everyday tasks.

"So, I wonder if society will just rely on AIs for stuff like this, like lottery prices, or at some point do other stuff that we need in a daily basis. Just to rely on AIs."

(January 18, 2024)

In other words, Pedro raised questions about the ways in which AI will change everyday life for humans, including the extent to which society might delegate daily needs to AI systems.

Recommendations Regarding the Use of ChatGPT. As seen earlier in this paper, Pedro had more reservations than Albert regarding using ChatGPT, especially for academic work. Yet, he did not express *full* reluctance in recommending it. He stated,

"But at the same time, it's useful so I don't know, it's just 50-50 of thoughts."

(January 18, 2024)

Despite Pedro's reservations, in this quote, he acknowledged the utility of ChatGPT, and described his thoughts as "50-50," or a balance of positive and negative thoughts, indicating a nuanced stance, and perhaps some ambivalence, on the tool's overall usefulness.

On the other hand, Albert explicitly recommended ChatGPT for student use. When asked whether he would recommend ChatGPT to others, he stated,

"Yes, I would always recommend AI...because I know it's more effective than our textbooks.... I would always recommend it for students and anybody, not only students anybody, because we all need to learn and get information about whatever is challenging our mind." (February 2, 2024)

Here, Albert elevated ChatGPT over traditional textbooks, emphasizing that he perceives this AI tool to be more effective in providing information. He also recommended ChatGPT to anyone facing challenges in acquiring information or seeking solutions to intellectual queries.

Overall, this theme reflects divergent viewpoints of participants in recommending ChatGPT or in terms of special considerations related to its use. For instance, Albert is concerned that overreliance on the tool could potentially make him and other users lazy academically. Thus, he is struggling to strike a balance in using it, in other words, not utilizing ChatGPT 100 percent of the time for schoolwork. However, he reports that ChatGPT is better than textbooks; although this is not verifiable, he is putting forth that whenever he does not understand a concept in the textbook, he uses ChatGPT to help him with clarification and definition of terms. Pedro raised ethical considerations related to using the tool, likening it to cheating when using it for essay writing. As such, this theme sheds light on the perspectives and guidance that these two international students offer regarding the integration of ChatGPT into their academic and non-academic writing practices or even in its utilization in society.

Questionnaire Findings

This section summarizes the questionnaire findings indicating how the participants' perceptions towards ChatGPT as a potential scaffold in academic essay writing remained static or shifted pre- and post-classroom intervention. First, I present the entire dataset: all questions, with responses summarized by mean, median, and mode. Next, I share findings from the table that indicated an increase in modal scores. After, I report those that indicated a decrease, those that indicated no change, and the modal score that indicated an increase and decrease.

Below is Table 2, which presents the entire data set, including questions from pre- and post-questionnaires, as well as means, medians, and modes for each question (Q1-Q15). (As a reminder, participants noted their agreement vs. disagreement with the statements below on a scale of 0 to 6: (0= *I don't understand this question*, 1= *Strongly Disagree*, 2=*Disagree*, 3=*I*

Slightly Disagree, 4=I Slightly Agree, 5= Agree and 6=Strongly Agree.) Additionally, in this table, I note how the questions were categorized in terms of increase, decrease, and no change.

Table 2 shows the Participants’ pre-intervention and post-intervention questionnaire responses.

Table 2.

Participants’ pre-intervention and post-intervention questionnaire responses

NO.	Question	Pre-intervention			Post-intervention			CATEGORY
		mean	mode	med	mean	mode	med.	
1.	ChatGPT will/did help me to write LONGER essays.	3.73	3	3	2.45	4	4	Increase
2.	ChatGPT will/did increase the time I spend writing an essay.	2.36	2	2	3	3	3	Increase
3.	ChatGPT will/did decrease the time I spend writing an essay.	2.9	2	2.5	3.7	5	4	Increase
4.	ChatGPT will be/was helpful to me in generating ideas by using prewriting techniques such as listing, mapping, freewriting, clustering, and brainstorming.	4	5	4.5	3.82	3, 4 ¹	4	Decrease
5.	ChatGPT will/did help me write my introduction.	2.9	4	3.5	3.8	4	4	No change
6.	ChatGPT can/did help me create a strong thesis statement.	3.55	4	4	3	2, 3	3	Decrease
7.	ChatGPT will/did help me create an exciting hook.	2.8	1, 5	2.5	2.55	3	3	Increase+ Decrease

¹ Where 2 numbers are listed, there was a tie in the mode.

8.	ChatGPT will/did help me determine topic sentences.	3.45	4	4	3.9	4	4	No change
9.	ChatGPT will/did help provide examples to help me make my point.	4.55	4, 6	4	4	4	4	Decrease
10.	ChatGPT will be/was helpful to me in writing transitions between ideas/paragraphs.	3.64	3, 4	4	3.5	4	4	No change
11.	Would ChatGPT be helpful/was it helpful to me in providing access to terminology or specialized vocabulary?	3.55	4	4	2.5	2	2	Decrease
12.	ChatGPT will be /was helpful to me in constructing a solid conclusion.	3.45	3	3	4.18	4	4	Increase
13.	ChatGPT will be/was helpful to me in writing an expository process essay.	3.36	3, 4	3	3.45	3	3	No change
14.	I have/had privacy concerns about using ChatGPT to help me write my expository process essay.	3.82	6	4	3.27	3	3	Decrease
15.	I am concerned about how <u>accurate</u> ChatGPT's recommendations will be/was in helping me write an expository	3.64	3, 4	4	3.27	2, 3	3	Decrease

	process essay. (Accuracy can mean grammar, vocabulary, punctuation, accuracy of information provided, etc.)							
16.	(Only posed in post-intervention questionnaire:) Did you finish all the writing process steps while using ChatGPT?	n/a	n/a	n/a	Yes=2	No=6	No response = 3	n/a

In order to be categorized as an increase or decrease from pre- to post-classroom intervention, a question's mode had to shift by a whole number; for example, a shift from 2 to 3 pre- to post- was categorized as an increase, whereas from 5 to 4 pre- to post- was treated as a decrease.

Where there were two modes, either pre- or post, I looked at the overall trend. For instance, in Q5, the mode went from 5 at pre-intervention to 3,4 at post-intervention. This would be an overall trend downward. (Other questions exhibited an overall trend upward, and one question exhibited a trend toward the middle. All of these but Q7 [trend toward the middle] are handled in the sections related to "increase in scores" and "decrease in scores.") However, there were some questions that did not exhibit an overall trend. For instance, on Q13, pre-intervention, the modes were 3 and 4, and at post-intervention, the mode was 3. There were 4 cases like this (Q9, Q10, Q13, Q15), and for those questions, I looked at the other descriptive statistics for clues on overall trends. I calculated the difference in mean and the difference in the

median for each question, pre-and post. Table 2 shows the results of the differences in mean and mode for Q9, Q10, Q13 and Q15.

Table 3

The results of the differences in mean and mode for Q9, Q10, Q13 and Q15

	Question	Pre-			Post-			Diff in mean	Diff in median	Category
		mean	mode	median	mean	mode	median			
9	ChatGPT will/did help provide examples to help me make my point.	4.55	4,6	4	4	4	4	-0.55	0	decrease
10	ChatGPT will be/was helpful to me in writing transitions between ideas/paragraphs.	3.64	3,4	4	3.5	4	4	-0.14	0	No change
13	ChatGPT will be/was helpful to me in writing an expository process essay.	3.36	3,4	3	3.45	3	3	0.09	0	No change
15	I am concerned about how <i>accurate</i> ChatGPT's recommendations will be/was in helping me write an expository process essay. (Accuracy can mean grammar, vocabulary, punctuation, accuracy of information provided, etc.)	3.64	3,4	4	3.27	2,3	3	-0.37	-1	decrease

To categorize these questions as “increase, decrease, or no change,” I first looked at the difference in means for these questions. When it was +/- .50 or greater, I categorized the question as reflecting a difference from pre- to post-. Only 1 question fell into this category: Question 9, which was categorized as a decrease from pre- to post-. When the difference in mean was smaller than +/- .50, I also looked at the difference in median. All questions that had no difference in median from pre- to post-, I categorized as "no change in score." That applied to Questions 10 and 13. Only one had a difference in median, question 15, where the median decreased by 1 from pre- to post-. Therefore, this was categorized as a decrease in scores.

As mentioned above, I will first discuss the questions from the entire data set in terms of which reflected an *increase* in mode from pre- to post-intervention, then those that reflected a *decrease* in mode, then those that reflected *no change* in mode, and finally, the question that reflected both an increase and a decrease.

Increase in Scores

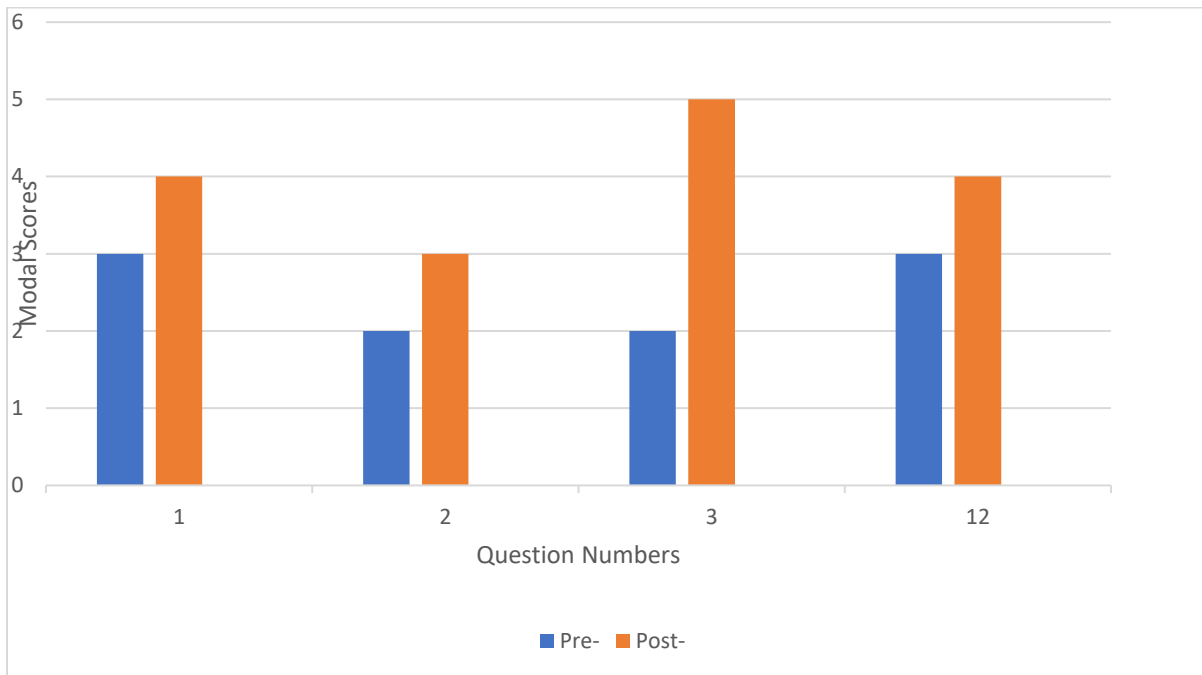
The questions that were categorized as an increase in mode from pre- to post- were:

1. *ChatGPT will/did help me to write longer essays.*
2. *ChatGPT will/did increase the time I spend writing an essay.*
3. *ChatGPT will/did decrease the time I spend writing an essay.*
12. *ChatGPT will/did be helpful to me in constructing a solid conclusion.*

Figure A shows the modal increases for the questions listed above.

Figure A

Modal Increases for Questions 1, 2, 3, 12, Pre- and Post-intervention



I will first address Questions 1 and 12, then move on to Questions 2 and 3, due to the latter's conflicting results.

For Question 1, at the pre-intervention stage, the most common response from students was that they *Slightly Disagreed* that ChatGPT would help them write longer essays(Q1, mode:3). However, post-intervention, the most common response to this question shifted to *Slightly Agree* (Q1, mode:4), indicating that, after using ChatGPT, more students felt that this tool was helpful in writing longer essays.

Similarly, in Question 12, at the pre-intervention stage, the most common response from students was that they *Slightly Disagreed* that ChatGPT would help them in writing a solid conclusion (Q12, mode:3). However, post-intervention, the most common response for this

question was *Slightly Agree* (Q12, mode:4), indicating that, after using ChatGPT, more students felt this tool was helpful in writing a conclusion.

Questions 2 and 3 present contradictory data. Question 2 asks if ChatGPT will or did increase the time the students spent writing an essay. The most common response for students pre-intervention was that they *Disagreed* (mode:2). Question 3 asks a related question: whether ChatGPT will or did decrease the time they spent writing an essay. The most common response pre-intervention was that they *Disagreed* (mode:2). In other words, these data reflect that students believe two contradictory things: four students disagree that ChatGPT will increase the time they spend in writing an essay (mode:2), and another four students disagreed that ChatGPT will decrease the amount of time they spend writing an essay (mode:2). This presents a conundrum: if students disagree that ChatGPT will *increase* the amount of time they spend writing an expository essay (as they responded in Q2), then it does not make sense that they would also agree that ChatGPT will *decrease* the amount of time they spend writing an essay.

To investigate this contradiction, I reviewed the data, examined each individual questionnaire, and recorded the participants' responses. I noticed that, in many cases, the same participants rated the questions the same – indicating contradictory feelings about these questions. I did not interpret their responses as indicating contradictory feelings, however. Instead, some possible explanations for this include the participants not reading closely or not understanding the relationship between these two questions. In some questions, there were either two markings or one crossed out, which means that the participants may have been confused about marking their choices accurately to reflect their beliefs. Also, one participant responded that they did not understand the question.

Decrease in Scores

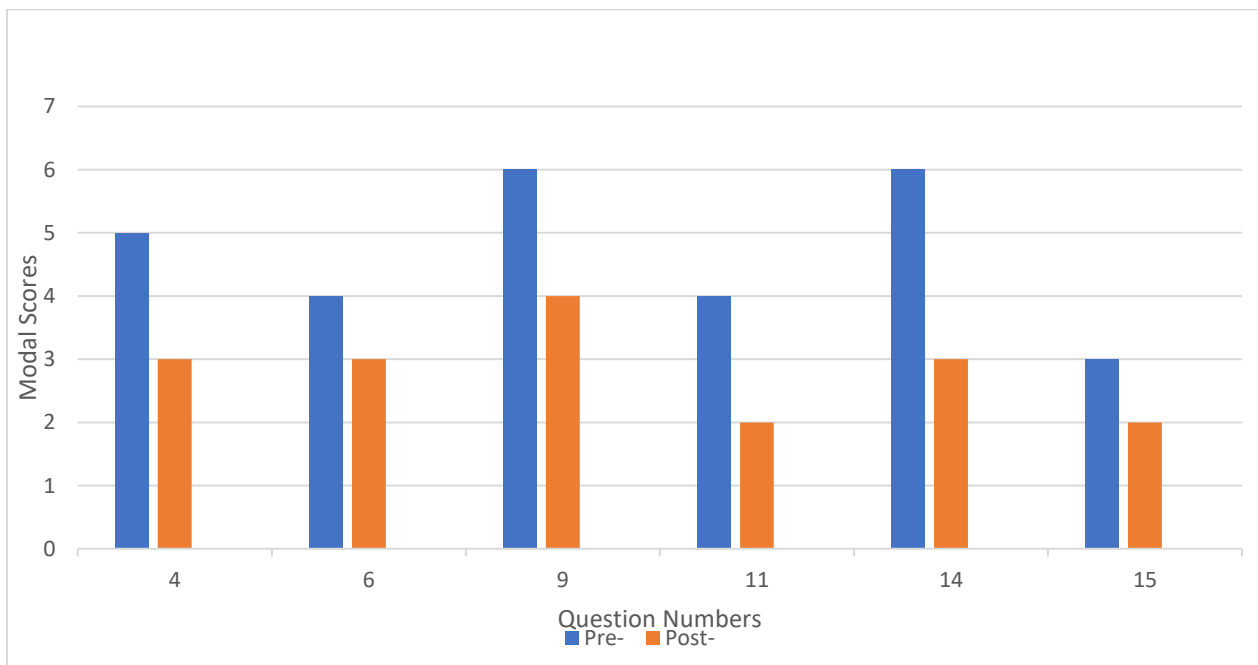
The questions that were categorized as having a modal decrease in scores from pre- to post- were:

- 4. ChatGPT will be/was helpful to me in generating ideas by using prewriting techniques such as listing, mapping, freewriting, clustering, and brainstorming.*
- 6. ChatGPT can/did help me create a strong thesis statement.*
- 9. ChatGPT will/did help provide examples to help me make my point.*
- 11. Would ChatGPT be helpful/was it helpful to me in providing access to terminology or specialized vocabulary?*
- 14. I have/had privacy concerns about using ChatGPT to help me write my expository process essay.*
- 15. I am concerned about how accurate ChatGPT's recommendations will be/was in helping me write an expository process essay. (Accuracy can mean grammar; vocabulary, punctuation, accuracy of information provided, etc.)*

Figure B shows the modal increases for the questions listed above.

Figure B

Modal Decreases for Questions 4, 6, 9, 11, 14, and 15.



According to question 4, at pre-invention, the students most frequently reported that they *agreed* ChatGPT would be helpful to them in generating ideas by using prewriting techniques

such as listing, mapping, free writing, clustering, and brainstorming (Q4, mode:5), but in the post-questionnaire, they most frequently reported that they *slightly disagreed* and *slightly agreed* that ChatGPT did help them (Q4, mode:3,4).

Also, at pre-intervention, students *slightly agreed* that ChatGPT would help them write a strong thesis statement (Q6, mode:4), but in post-intervention, the students *disagreed* (Q6, mode:2). Further, in question 9, the students *slightly agreed* and *strongly agreed* that ChatGPT would provide them with examples to help them make a point in their essay (Q9, mode:4,6) but at post-intervention, they *slightly agreed* (Q9, mode:4)

Additionally, the students' most frequent response at pre-intervention was that they *slightly agreed* that ChatGPT would help them access terminologies /specialized vocabularies (Q11, mode 4), but they *disagreed* at post-intervention (Q11, mode 2).

Also, in question 14, students *strongly agreed* that they had concerns related to privacy when using ChatGPT to help them write their expository essays (Q14, mode:6), but post-intervention, their most common response shifted to *slightly disagreeing* (Q14, mode:3).

Additionally, the students at pre-intervention *slightly disagreed* and *slightly agreed* to have concerns related to the accuracy of using ChatGPT in helping them write an expository essay pre-intervention (Q15, mode:3,5), but at post-intervention, they *disagreed* and *slightly disagreed* (Q15, mode:2,3) respectively.

Overall, the student's responses indicate that initially, they believed that ChatGPT would help them generate ideas for their essays, write a strong thesis, and access terminologies, but post-intervention, their perception dropped by the above respective median scores. Also, their concerns about privacy and accuracy in the responses generated by ChatGPT dropped, as indicated in **Figure B** above.

No Change in Scores

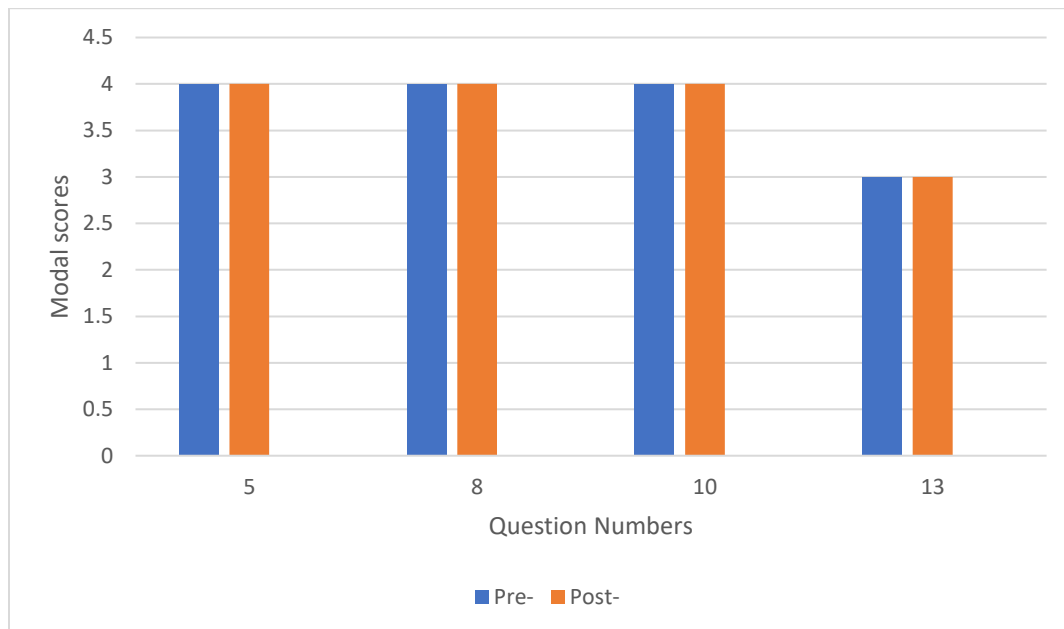
The questions that were categorized as no change in mode from pre- to post- were:

- 5. *ChatGPT will/did help me write my introduction.*
- 8. *ChatGPT will/did help me determine topic sentences.*
- 10. *ChatGPT will be/was helpful to me in writing transitions between ideas/paragraphs.*
- 13. *ChatGPT will be/ was helpful to me in writing an expository process essay.*

Figure C shows the modal scores for the questions listed above.

Figure C

Modal Scores that Indicate No Change for Questions 5, 8, 10, 13, Pre- and Post-Intervention



According to question 5, both pre-intervention and post-intervention, the students *Slightly Agreed* that ChatGPT would help them write an introduction (Q5, mode:4). There was no change in the mode in pre-intervention and post-intervention responses for question 8 either, as the students *Slightly Agreed* that ChatGPT would help them determine Topic sentences (Q8, mode:4).

For question 10, students *Slightly Agreed* at both pre-intervention and post-intervention that ChatGPT would be or was helpful to them in writing transitions between ideas/paragraphs

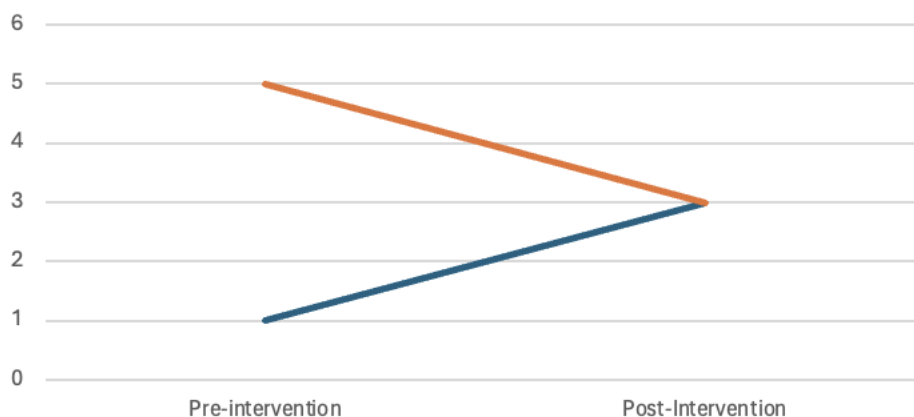
(Q10, mode:4) . For Question 13, at pre-intervention and post-intervention, the students slightly disagreed that ChatGPT would be or was helpful to them in writing an expository process essay (Q13, mode:3). This indicates that the students, overall, did not feel that ChatGPT was of help to them in writing their introductions, determining topic sentences, writing transitions and writing an expository essay as a whole.

Increase and Decrease in Mode

There was one question that indicated both an increase and decrease in mode from pre- to post-intervention: Question 7. At pre-intervention, there were two most common responses, and students were divided: three of the students reported that they *Strongly Disagreed* that ChatGPT would help them create an exciting hook (mode:1), and three of the students reported that they *Agreed* that ChatGPT would help them create an exciting hook (mode:5). However, at post-intervention, students most commonly responded that they *Slightly Disagree* that Chat GPT helped them in writing an exciting hook (mode:3). Figure D illustrates these shifts.

Figure D.

Modal Increase and Decrease in Question 7



In other words, as seen above, the extreme modes of 1 and 5 shifted to the lower-middle: post-intervention, students most often *slightly disagreed* that ChatGPT helped them in writing an exciting hook.

In summary, two questions reflected an increase in scores pre- and post (Q1 and Q12), six reflected a decrease in scores (Q4, Q6, Q9, Q11, Q14, Q15), four reflected no change in scores (Q5, Q8, Q10, Q13) and one reflected an increase and a decrease (Q7). One point of clarification is needed. Although approximately half of the questions (6 questions) reflected that students' perceptions *decreased* pre- vs. post-, we cannot say their perceptions became more negative across the board. Two of the questions that reflected a decrease actually indicate a *more positive perception* post-intervention: Questions 14 and 15 reflect that students' perceptions post-intervention were more *positive* related to privacy and accuracy (i.e., their concerns decreased). In other words, overall, as a result of the intervention, students' perceptions of using ChatGPT to write academic essays became more positive in some ways, more negative in others, and remained static in others. There was no overall trend upward, downward, or neutral. Note that this summary does not include questions 2 and 3, due to their conflicting results. Specifically, it is unclear whether participants understood the questions, and the results may be invalid.

Discussion

This section summarizes and discusses the findings shared above. I also make connections to existing literature. Moreover, the implications and limitations of the study will also be discussed.

ChatGPT as a (Peer) Scaffold

The in-class intervention in the present study was structured as a kind of substitution for peer feedback. For instance, the students got feedback from ChatGPT on each stage of their

writing process. As stated in the literature review for this study, students generally find it helpful and benefit from engaging in peer review of their written work (DeGuerrero & Villamil, 2000). We can think about ChatGPT as a potential “peer” that engages in dialogue (e.g., Su et al. 2023) and can provide feedback on writing. However, the findings of this study show that students’ perceptions of using ChatGPT as a scaffold for writing may differ from their perceptions of getting feedback on their writing from a peer. Specifically, their perceptions of ChatGPT in this study are not as positive as the perceptions of students getting peer feedback (De Guerrero & Villamil, 2000; Hanjani & Li, 2014; Mangelsdorf, 1992; Teo, 2006; Warwick & Maloch, 2003). Also, their perceptions of using the tool may shift after becoming more familiar with it (e.g., just as students’ perceptions of peer review shift after doing it a few times.)

It should also be noted that using ChatGPT as a substitute for “peer” feedback does not give students the opportunity to provide feedback on another human’s writing, which may impact their own writing negatively. For example, Mangelsdorf (1992) reports that students who gave feedback on each other’s work benefited with critical thinking.

In terms of accuracy and trustworthiness, on questionnaires, participants’ concerns were higher at pre-intervention than at post intervention (Q15). In the interviews, Albert was concerned about accuracy in different versions of ChatGPT. This is similar to Chan and Hu’s (2023) findings; one of their participants stated, “We cannot predict or accurately verify the accuracy of or validity of the AI-generated information” (p.11). It is probably wise for students to have these concerns, as Barrot (2023) found that ChatGPT may produce inaccurate responses, especially due to the ways L2 students might phrase their prompts. Regardless, as stated above, participants in the present study rated their concerns as lower *after* using ChatGPT in class. We

might wonder if this tool's use over time will make the participants concern over accuracy and trustworthiness of the tool go down completely.

ChatGPT as a Language/Literacy Scaffold

In the literature review for this study, a number of language and literacy scaffolds for writing were described (Liang et al., 2023). The questionnaire for this study primarily focused on discourse-level scaffolds; however, there were also questions at the level of individual words (Q11), sentence (Q8), sentence-discourse (Q6, Q7, Q10)². There was only one overall pattern in terms of language and literacy scaffolds: Students' perceptions related to sentence-level or sentence/discourse-level scaffolds either decreased or remained the same post-intervention. Discourse-level scaffolds both increased and decreased. In other words, according to these students, ChatGPT is helpful with some discourse-level scaffolds but not others (e.g., Q12 was rated as more helpful, and Q9 was rated as less helpful). Additionally, in the questionnaires, ChatGPT is rated by these students as less helpful than they thought it would be in providing word, sentence, or sentence/discourse level scaffolding. In terms of word-level support, this conflicts with Al-Mahmud (2023), who found participants' writing after using Wordtune was better in terms of more concrete nouns, adjectives, verbs, complex phrases, complex sentences, and compound sentences. Additionally, my findings are also different from Sumakul et al. (2022) who found that the free AI tool called "plot generator" helped students learn new words or phrases from the app or reminded them of the vocabulary they might have forgotten.

Also, the interviews for the present study give us additional insight into some questionnaire responses related to language and literacy scaffolds. For example, both Albert and

² Sentence-discourse questions were those related to ChatGPT providing sentence-level feedback, but requiring knowledge of conventions beyond the level of one sentence (e.g., a strong thesis statement may be one sentence, but understanding how the thesis statement relates to the rest of the paragraph and essay in general is necessary).

Pedro expressed using generative AI tools to come up with ideas for lengthier essays in academic contexts and for writing a longer speech in a non-academic context. This is unsurprising, because questionnaire responses related to ChatGPT helping to write a longer essay increased from Pre- to Post- (Q1). This is in line with Warschauer et al. (2023) who recommend teaching students to use ChatGPT to generate ideas for their writing.

Additionally, Albert reported that he used AI for word-level support. Specifically, he said, *“I solely depend on AI for explanation and clarification on terms.”* His perception appears to be in the minority because word-level support was rated low in the post-intervention questionnaires (mode: 2).

While both interviewees and questionnaire responses indicated that participants perceive there are some helpful uses of ChatGPT at the discourse-level (e.g., writing longer essays, writing an introduction, constructing a conclusion, amongst others) it is useful to know that ChatGPT may be a potential distractor in the writing process. Out of 11 questionnaires, only two participants reported that they were able to complete the writing process (intervention) conducted during class, using ChatGPT as a writing scaffold (Question 16). Six did not complete the in-class intervention writing task, and three did not respond to this question. In other words, ChatGPT may slow down the writing process. This is an interesting finding, considering that many who advocate for the use of AI for academic purposes (e.g., on TikTok, Instagram, etc.) promote how it saves people time (e.g., <https://www.instagram.com/kennedyaiforall/>).

Scaffolding, ChatGPT, and Ethics

Concerns associated with the use of AI in academic settings, such as privacy of information, ethical use of AI tools, the accuracy of AI-generated information, and transparency, have been raised by many scholars. (Barrot, 2023; Cotton et al.2024; Chan & Hu,2023; Črček &

Patekar,2023; Stepanechko & Kozub 2023; Zeb et al. 2024). For instance, Cotton et al.(2024) report that GPT-3 can be used to facilitate cheating since it can be hard for the instructors to distinguish machine-generated writing from human writing. As mentioned in the Findings of this paper, Albert said, *“Before we learned about AI in our class, first I used to copy everything (from AI)”* (February 2, 2024). Pedro also reported that using ChatGPT in writing an essay is a form of cheating, *“...like a 8 year old can jump on ChatGPT and write an essay about a college level and he can get an essay. Is that kid smart enough to write like a 20-year-old? I don't think so, but well, maybe he is. Mm-hmm. But I think it's just cheating..”*(January 18, 2024). Barrot (2023) points to potential issues with unethical use of AI as well, remarking that students who are too reliant on ChatGPT to complete their writing assignments may face learning losses related to critical thinking and creativity.

Implications

This section discusses both the pedagogical and theoretical implications of the study.

Pedagogical Implications

In terms of using ChatGPT as a scaffold with which students can dialogue while writing academic essays, several implications emerged. First, if students feel more positively about getting feedback from peers vs. from ChatGPT, as these findings suggest, then teachers should spell out how the students can use ChatGPT as a form of peer feedback. Additionally, since using ChatGPT in feedback cycles does not allow students to provide feedback on another human’s writing – yet we know that doing so is beneficial for students (e.g., DeGuerrero & Villamil, 2000; Hanjani & Li, 2014) then teachers should emphasize to students that they should use peer feedback for their writing since both participants will mutually benefit. Further, since students found ChatGPT to be less helpful than they expected for word, sentence, or sentence/discourse level scaffolding, perhaps teachers will notice that some students do not use AI because they feel

they write better than AI. Also, if using ChatGPT to receive feedback on writing slows down the writing process for students, as this study suggests it might, teachers might consider telling their students to work by themselves first before turning to AI for refining their work. Finally, if students' concerns about ChatGPT's accuracy and privacy decrease through increased use of the tool, teachers might consider incorporating these tools in a way that encourages the students to become critical users of technology. For instance, teachers might consider ChatGPT in the classroom as a supplemental tool while also providing guidance on its limitations and the importance of verifying information, as this will help the students maintain a critical and responsible use of these tools.

When it comes to ethics and the use of ChatGPT for academic writing, this study suggests that teachers and administrators may want to spell out integrity policies related to how and when to use AI in writing and coursework. This is in line with Barrot (2023), Warschauer et al. (2023), and Cotton (2023), who write that clear guidelines for the use of AI tools will help students to understand why they are using the tool. Also, having ethics policies clearly stated is important for students who feel they need additional support, because they may be more likely to seek out support from digital tools, such as AI. Barrot (2023) makes a specific ethics recommendation, stating, "While ChatGPT can be useful as an L2 writing assistant, adopting it as a supplemental tool for writing essays is highly advisable rather than relying on it as a content creator" (Barrot, 2023, p. 4) This way, students are encouraged to use ChatGPT to refine their original thoughts, instead of to generate thoughts. Additionally, Cotton (2023) suggests that educating students on plagiarism is the most effective way to address integrity issues. He further recommends asking the students to complete a declaration form stating that the student's work is original to help them be accountable for their actions.

An additional consideration for pedagogy is that participants in my study are between the ages of 18-23 years, which means they are in Generation Z. Pearson (2018) reports that almost half of Gen Z (47%) spend a minimum of three hours daily on YouTube. This age group has grown up in an era where technological advancements are an integral part of lives (Seemillar & Grace, 2016) and, in this way, they might be considered as having a technophilic mindset (Puiu, 2017). Therefore, college students may be quick to adopt and utilize these emerging technologies in writing and other academic tasks. Returning to Albert's interview and his comment that AI is "more effective than our textbooks," teachers should expect that their students are using AI and that it is becoming just one more tool available to succeed in school. Also, Gen Z students may use AI to understand course content in unexpected ways, like supplementing course content. Therefore, curriculum developers and textbook authors may want to consider incorporating AI scaffolding into curricula.

Theoretical Implications

One brief theoretical note about AI and its use for scaffolding in academic contexts is important. Sociocultural theory emphasizes that scaffolding happens through the use of tools and social interaction. On the surface, ChatGPT seems like that type of tool. But it is also emerging as a kind of "social" interaction. As Opara et al. (2023) write, ChatGPT offers students the opportunity to dialogue. Then, the kinds of interaction that are emerging with ChatGPT may cause us to ask, "What counts as social interaction now?" In terms of scaffolding, the findings cause us to wonder how we should think about scaffolding as society moves forward with these technologies.

Limitations

A sample size of 11 participants is relatively small for data collection with questionnaires, which means future research should use a larger sample. Hatch and Lazaraton (1991) suggest a minimum of 30 participants for stability of ranges in the scores.

Although data was collected by research assistants in the quantitative phase, semi-structured interviews were conducted by the researcher, who was also the classroom teacher. This potentially means that the participants were hesitant to share sensitive information. They also may have altered their responses to provide untruthful responses, thus limiting critical information, unlike when an independent party takes up interviews. Lastly, the participants were from Nepal, Ghana, Bangladesh, Iran, Spain, and Ukraine; they were enrolled in a mid-sized University in the U.S.; and their ages ranged between 18-21 years. This means we cannot generalize the results. Therefore, future research should focus on a more diverse sample to include different kinds of higher learning institutions in different countries, with students of varied language and cultural backgrounds and of mixed ages.

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Appendices

Appendix A

Interview protocol

1. Before using ChatGPT in our class, had you used it before?

If yes, describe to me how you had used it before.

If no, what factors do you think contributed to not using it before (e.g., you hadn't heard of it, didn't know how to access it, worried about plagiarism, etc.)

2. How was your perception of ChatGPT similar or different from the experience of using it to write an essay? (*Prompts: Tell me more about that...*)

3. It's been several weeks since we did the class activity with ChatGPT. What are your perceptions about how you approach writing assignments now vs. before? Can you explain more, please? (*Prompts: Describe any changes you've noticed. Tell me more about why you think learning about ChatGPT during class has/hasn't changed anything for you, e.g., I didn't find it helpful, I'm not sure how to transfer what we learned in class to other settings, etc.*)

4. Have you used ChatGPT since we had our class session related to it – either for school assignments or outside of school?

If so, please describe to me how you've used it and what your hopes or goals have been in using it.

If not, please tell me more about your choice not to use it (e.g., other professors have cautioned students against using it, I'm concerned about how accurate it is, I'm concerned about privacy issues, in personal life, I see no need for it, etc.)

4a. Tell me about any concerns you have (if any) with the accuracy of ChatGPT's suggestions.

4b. Tell me about any concerns you have (if any) related to privacy when using ChatGPT.

5. In the future, in what ways do you envision using ChatGPT or other AI tools – whether for academic work, in your career, or in your personal life? What are any expectations, hopes, or goals you have for using these tools in the future?

Prompts: Can you tell me more about...; Can you describe X to me in more detail...

Appendix B

IRB Approval

Date: 7-2-2024

IRB #: 2024-65

Title: International students perceptions of using AI in college composition

Creation Date: 10-19-2023

End Date:

Status: **Approved**

Principal Investigator: Nicole Pettitt

Review Board: YSU IRB Board

Sponsor:

Study History

Submission Type	Initial	Review Type	Exempt	Decision	Exempt
Submission Type	Modification	Review Type	Exempt	Decision	Approved

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