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#### **ARTICLE**

# **Incorporating ChatGPT in EFL Classrooms: An Examination of the Impact on Learners' Motivation and Engagement**

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#### **ABSTRACT**

The incorporation of artificial intelligence (AI) tools in educational settings, especially in EFL/ESL classrooms, offers new prospects for enhancing students' learning experiences. Using self-determination theory and social constructivist learning frameworks, the study examines the impact of ChatGPT, an artificial intelligence language model, on Saudi EFL learners' motivation and engagement. A quasi-experimental method was employed to collect quantitative and qualitative data from 60 intermediate diploma EFL students enrolled in a language learning program at the Applied College, Prince Sattam bin Abdulaziz University. The experimental group (n = 30), comprising 60 intermediate diploma students, participated in activities utilizing ChatGPT, while the control group (n = 30) employed a conventional method without AI assistance. It was found that the students in the experimental group demonstrated a higher level of motivation and engagement compared to those who relied on conventional methods of instruction. The thematic analysis of the interview responses also corroborated the findings of the quantitative data. The study suggests that ChatGPT could serve as a great resource for EFL instruction when conventional methods don't resonate with tech-savvy modern learners. The findings add to the expanding literature on artificial intelligence (AI) in language classrooms while offering practical guidance to instructors who wish to utilize AI to motivate learners to study language. These findings imply that AI technologies may be beneficial supplements to

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language training when used in conjunction with specific educational objectives.

*Keywords:* Collaborative Language Practice; Conventional Methods of Instruction; Low Motivation and Engagement; Self-Directed Learning; Meaningful Human Contact

#### 1. Introduction

Technology provides language learners with innovative ways to engage with the language they are studying, allowing them to access authentic and interactive resources that promote the development of language skills in a more engaging and meaningful manner<sup>[1,2]</sup>. Recent advances in artificial intelligence (AI) in education have greatly improved foreign language learning, especially in EFL settings. OpenAI's ChatGPT, a large language model, has gained interest due to its ability to support language learners through dynamic, collaborative, and customized interactions. The rapid growth of AI in education has enabled personalized learning and new instructional approaches [3,4]. While academic discussions continue to explore the pros and cons of AI-powered tools, particularly ChatGPT, multiple studies [5,6] have confirmed its positive impact on enhancing various aspects of EFL and ESL learners.

The rapid expansion of AI in educational settings has created new opportunities for enhancing teaching and learning across various disciplines. Conversational agents like ChatGPT, which can imitate human responses, provide quick feedback, and support interactive learning, are becoming increasingly popular among AI solutions [7–10]. ChatGPT offers real-time engagement and personalized guidance in EFL courses, where students often lack authentic conversation practice and immediate feedback. Research on ChatGPT in EFL is both timely and crucial. Understanding how AI-powered interactions motivate and engage students could inform instructional design and pedagogy as language teachers incorporate digital technologies to improve education.

English language instructors and policymakers have long struggled with low motivation and engagement among EFL/ESL learners. To succeed academically, learners need to be motivated and engaged, which helps them reach their educational goals. By leveraging technology, learners can increase their motivation and self-determination, taking charge of their own learning. For instance, a study by Li et al. [11] examined how integrating ChatGPT into instruction affects stu-

dents' motivation, engagement, self-learning, and research skills. The results showed that students who received this instruction were more motivated, engaged, skilled at research, and self-directed learners. Another study by Rehman and Kang<sup>[12]</sup> looked at how ChatGPT impacts students' educational engagement and motivation, using student demographics as a lens. The findings revealed that using ChatGPT had a positive effect on both male and female learners in all semesters and degree programs at public and private institutions in Karachi.

#### 1.1. Research Problem

In Saudi Arabia, studies [13,14] explore motivation in EFL learning, but research on AI tools like ChatGPT's impact is limited. Most focus on technology adoption, not on emotional factors like motivation and engagement, especially in EFL classes. Understanding ChatGPT's pedagogical role is vital, as English proficiency is a national priority and student motivation remains a challenge. Few studies examine how Saudi EFL learners use ChatGPT and its effect on motivation and engagement. Context-specific research is essential for culturally effective AI implementation. This study aims to fill this gap, enhancing language learning to be more engaging and personalized.

#### 1.2. Research Purpose Statement

This study investigates the impact of ChatGPT incorporation on Saudi EFL students' motivation and engagement.

#### 2. Literature Review

#### 2.1. Theoretical Perspective

Integrating AI tools like ChatGPT into EFL lessons marks a significant advance in teaching methods. The Technology Acceptance Model (TAM)<sup>[15]</sup>, Constructivist Learning Theory<sup>[16]</sup>, and self-determination theory (SDT) support this approach. These theories underpin the idea of us-

ing ChatGPT as both a cognitive and motivational resource in EFL classes. For instance, the Technology Acceptance Model suggests that perceived benefits and ease of use encourage adoption. Learners and teachers are more open to using ChatGPT for language learning because they recognize its advantages and find it simple to apply. Similarly. Deci and Ryan's [17] self-determination theory (SDT) states that autonomy, competence, and a sense of belonging drive motivation. AI tools, including ChatGPT, offer quick and personalized instruction for EFL students. Non-judgmental teaching and feedback-free methods boost students' motivation and confidence. Modern language education leverages ChatGPT's interactive features to help learners close knowledge gaps, practice language socially, and develop new skills. Since ChatGPT aligns with Vygotsky's Social Development Theory's concept of the zone of proximal development and scaffolding—highlighting how social interaction influences cognitive growth—its integration could revolutionize EFL classes. These ideas lay the groundwork for understanding how ChatGPT may boost student engagement and motivation in language learning.

#### 2.2. AI and Chatbots in EFL Contexts

Klímová and Ibna Seraj<sup>[18]</sup> conducted a mini-review to highlight relevant research developments, designs, and concepts, and to suggest specific pedagogical implications for using chatbots in EFL lessons. The study followed the PRISMA method and searched for open-access empirical studies in two well-known databases, Web of Science and Scopus. The findings supported previous studies that examined the effectiveness, inspiration, satisfaction, exposure, and evaluation of chatbots in university EFL settings. The pedagogical implications and strategies help language instructors use chatbots effectively, whether in formal or informal contexts. Jeon<sup>[19]</sup> investigated the impact of chatbots on the psychological well-being and motivation to learn English among elementary EFL students. Thirty-six Korean primary school students completed a 16-week chatbot-based EFL course. The chatbots were developed using Google Dialog flow. Post-training interviews with chatbots were conducted separately. Data were collected from interviews and student interactions with the chatbots.

Qualitative transcripts of interviews and engagement records revealed instructional, technical, and interpersonal

advantages. Shikun et al. [20] examined the potential benefits and efficiency of AI chatbots in EFL contexts, with an emphasis on second language acquisition. The study used multiple tools, including feedback, online interviews, questionnaires, and both quantitative and qualitative methods, to collect data. The results showed that AI chatbots improved students' speaking skills while creating a relaxed and noncompetitive learning environment. Pitychoutis [21] evaluated how digital assistants enhanced the essay-writing skills of English learners, emphasizing the importance of integrating technology into education. The study discussed the benefits and challenges of using AI chatbots in education, highlighting their effects on student autonomy, various learning styles, and safe language experimentation. The findings highlight the endless possibilities of AI chatbots in language learning, supporting a move toward collaborative, responsive, and student-centered teaching approaches. Han<sup>[22]</sup> explored the impact of voice-based AI chatbots on the speaking skills of Korean EFL middle school students, as well as their emotional domains, including interest, opinions, motivation, and perceived anxiety. The study involved 44 first-year Korean middle school students in control and experimental groups. NEAT pre- and post-tests measured students' speaking abilities. Formal surveys assessed emotional changes before and after the intervention. It was found that AI robots improved EFL students' speaking skills and their views on using AI chatbots for English learning. The study recommends that EFL teachers incorporate AI robots to enhance English education.

## 2.3. ChatGPT Applications in Language Education

Researchers Suciatim et al. <sup>[23]</sup> investigated the impact of incorporating the AI chatbot ChatGPT on motivation and involvement in English writing programs. The study involved 72 students in both control and experimental groups, who completed standard and ChatGPT-supported activities. Using Analysis of Covariance (ANCOVA), the researchers evaluated motivation and engagement based on pre- and post-questionnaires. The results showed that ChatGPT significantly boosted intrinsic and extrinsic motivation, as well as behavioral, cognitive, and emotional engagement, in the experimental group compared to the control group. This suggests that ChatGPT could make learning easier, more inter-

active, and personalized, ultimately transforming education. A separate study by Yıldız<sup>[24]</sup> looked at how incorporating ChatGPT-generated dialogues into language instructional materials impacts language learners' motivation. The study involved 60 second-year undergraduates, and the Motivational Strategies for Learning Ouestionnaire was used to assess their learning motivation. Another survey by Mohamed [25] examined the views of 10 Northern Border University EFL instructors on ChatGPT's effectiveness in helping students learn English. Through extensive interviews with instructors, the research found that faculty had mixed opinions on ChatGPT's effectiveness. While some instructors valued ChatGPT's quick and precise responses to multiple questions, others thought it could hinder students' critical thinking and research skills and even spread assumptions or disinformation. The study highlights ChatGPT's potential to enhance EFL students' English skills. This research found statistically significant differences between majors in terms of autonomy, intrinsic motivation, and test anxiety, underscoring the role of ChatGPT in boosting students' motivation levels. Additionally, Anjarani et al. [26] studied how AI, specifically ChatGPT, can improve engagement through personalized feedback, creative expression, and interactive learning. The study, which involved 80 participants, used a quasi-experimental design to evaluate the impact of ChatGPT on cognitive, behavioral, and emotional engagement. Participants were divided into control and experimental groups, with the latter using Chat-GPT for brainstorming and instructional support. The results showed that the experimental group had significantly higher engagement across all dimensions, emphasizing the importance of ChatGPT in creating student-centered environments that complement traditional instruction methods.

Anjum<sup>[27]</sup> examined the effect of ChatGPT, an artificial intelligence language model, on the engagement and motivation of students learning a second language (SLA). The study employed both qualitative and quantitative methods to collect data from a diverse group of students learning various second languages. It was found that ChatGPT's personalized learning, fast feedback, and variety of conversational activities motivated students, suggesting that they were more interested in dynamic and adaptive AI interactions that allowed judgment-free language practice. The findings suggest that AI could impact SLA, enabling more creative and successful educational practices. Ali et al.<sup>[28]</sup> exam-

ined the impact of ChatGPT on English language learning. Data from 80 instructors and learners who used ChatGPT in early 2023 was collected using a quantitative research design. The findings revealed that ChatGPT promoted writing and reading. The study suggests that ChatGPT enhances learners' motivation and engagement. Abdelhalim and Alsehibany<sup>[29]</sup> investigated the differences between ChatGPT and conventional teacher-directed instruction in terms of vocabulary acquisition and retention. 71 EFL students were allocated into an experimental group (EG) and a control group using a quasi-experimental pre- and post-test control group design in an explanatory sequential mixed-methods structure. While quantitative analysis revealed that the experimental group had a significant advantage over the control group in productive vocabulary knowledge and overall test scores, qualitative findings revealed ChatGPT's impact on scaffolded interaction, engagement, motivation, vocabulary usage, and positive student feedback. Sapan and Uzun<sup>[30]</sup> investigated the impact of integrating ChatGPT on the development of writing skills and vocabulary among Turkish EFL learners. Using a mixed-methods approach, the study assigned 66 students to either an experimental or a control group. Seven students underwent semi-structured interviews after successful implementation. Pre- and post-test results revealed that conventional instruction enhanced learners' writing and vocabulary. Semi-structured interviews revealed that students primarily valued ChatGPT, but also expressed concerns about academic integrity, ethics, and potential laziness. The study suggests suggestions for instructors, students, and researchers. Jayaputri<sup>[31]</sup> employed a one-group pretest-post-test design to evaluate the impact of ChatGPT on student English language learning motivation. For the study, 40 students were selected based on their interest, English competency, and technology utilization. Data was collected using assessments of English proficiency and questionnaires, and SPSS 25.0 was used for statistical analysis. The findings revealed that ChatGPT enhanced student motivation in English language learning. From pre-test to post-test, student motivation improved substantially for English proficiency tests and questionnaires.

#### 2.4. Research Question

What is the impact of ChatGPT incorporation in EFL classrooms on learners' motivation and engagement?

#### 3. Method

#### 3.1. Research Design

This study examined the impact of incorporating Chat-GPT into EFL lessons on students' motivation and engagement. To fully understand learners' experiences, a quasiexperimental approach was used to gather both quantitative and qualitative data.

#### 3.2. Participants

The participants comprised 60 intermediate diploma EFL students enrolled in a language learning program at the Applied College, Prince Sattam bin Abdulaziz University. Respondents were assigned to an experimental group (n = 30) and a control group (n = 30). All individuals had prior experience with learning applications and provided consent for their participation in the study. Each group consisted of 30 individuals, given practical and statistical constraints. This sample size provides the study with the statistical ability to compare ChatGPT-integrated instruction and conventional Saudi EFL classrooms in learner motivation and engagement.

#### 3.3. Procedure

The study was conducted over 8 weeks in an EFL classroom. The experimental group (n = 30), comprising 60 intermediate diploma students, participated in activities utilizing ChatGPT, while the control group (n = 30) employed a conventional method without AI assistance. All participants completed a pre-test questionnaire to assess motivation and learning engagement at the start of the study (Appendix A). In the intervention, the experimental group utilized ChatGPT for weekly writing prompts, vocabulary practice, grammatical correction, and conversational simulations. These activities were delivered via the learning platform's message boards and chat rooms, utilizing instructor-created questions for ChatGPT responses. The control group completed the same tasks without AI, utilizing instructor and peer collaboration. Following the eight-week intervention, all participants completed a post-test using the same instruments. Ten experimental group students participated in semi-structured interviews to learn more about ChatGPT and how it impacted their motivation and engagement in the EFL classroom.

#### 3.4. Instruments

Pre- and post-intervention questionnaires collected quantitative data using validated instruments, comprising an online learning engagement indicator<sup>[32]</sup> and an L2 Motivational Self-System-based motivational survey<sup>[33]</sup>. The learning control system additionally evaluated ChatGPT engagement duration and frequency. A purposive sample of 10 experimental participants supplied qualitative data through semi-structured interviews. Interviews investigated how students perceived ChatGPT and its impact on their engagement and motivation.

#### 3.5. Procedure of Data Analysis

Data analysis was conducted using both quantitative and qualitative approaches. Normality was assessed utilizing the Shapiro-Wilk test for each outcome categorized by group and time point<sup>[34]</sup>. As several raw scores did not conform to normal distribution, a rank-based inverse-normal (Blom) transformation was applied for each group and time point [35]. Following the transformation, all distributions met the assumption of normality<sup>[34]</sup>. Homogeneity of variance was examined using Levene's test<sup>[36]</sup>, and when this assumption was violated, Welch's unequal-variance t-test was employed [37]. Quantitative comparisons were performed using paired-sample and independent-sample t-tests to determine within-group and between-group differences, respectively. Primary post-test comparisons were conducted on transformed scores, with Hedges' g reported to indicate effect size [38]. To ensure robustness, nonparametric sensitivity analyses were also conducted, including the Mann-Whitney U test and calculation of rank-biserial r<sup>[39,40]</sup>. Complementing the quantitative analysis, qualitative data were examined through thematic analysis, following the six-phase framework developed by Braun and Clarke [41] to identify recurring patterns, themes, and insights related to learner motivation and engagement.

## 4. Results And Findings

#### 4.1. Quantitative Results

#### 4.1.1. Descriptive Statistics

A summary of the statistics regarding the levels of motivation and engagement demonstrated by the two groups is

given in **Table 1**. When the study started, the experimental SD = 0.45) and engagement (M = 4.10, SD = 0.40) as comand control groups had comparable motivation and engagement. The results of the post-test for the experimental group revealed higher mean scores in both motivation (M = 4.32,

pared with the outcomes for the control group (M = 3.89, SD = 0.52 for motivation; M = 3.66, SD = 0.49 for engagement). This statistical analysis answers the research question.

Table 1. Statistics on Motivation Levels and Engagement Levels (Experimental vs. Control group).

Variables	Group	Mean	SD	N
Engagement (pre-test)	Experimental	3.6	0.43	30
	Control	3.58	0.44	30
Engagement (post-test)	Experimental	4.1	0.4	30
	Control	3.66	0.49	30
Motivation (pre-test)	Experimental	3.75	0.48	30
	Control	3.78	0.51	30
Motivation (post-test)	Experimental	4.32	0.45	30
	Control	3.89	0.52	30

#### 4.1.2. Inferential Statistics

Independent-sample T-tests were utilized to check if any variations in post-test scores were statistically relevant. As demonstrated in **Table 2**, the experimental group per-

formed considerably better on motivation (t (58) = 3.14, p = 0.002) and engagement (t (58) = 2.98, p = 0.004) than the control group. Cohen's d values revealed considerable effect sizes for both variables (motivation: d = 0.81; engagement: d = 0.77), indicating a significant practical impact.

Table 2. Independent-sample t-tests.

Variable	t	df	p	Cohen's d
Engagement	2.98	58	0.004**	0.77
Motivation	3.14	58	0.002**	0.81

#### 4.2. Qualitative Result

Thematic analysis revealed that ChatGPT improved EFL students' motivation, engagement, and confidence. The technology promotes autonomous and sustained learning, language growth, and customized and accessible English language practice. ChatGPT offers non-human, all-time flexibility for learners to practice and improve English with greater freedom and less anxiety. Specific features, such as anxietyfree and non-judgmental feedback, customized instruction, and engaging and interactive learning aspects, positively impacted learning motivation and engagement. The qualitative analysis supports the quantitative findings in answering the research question.

## 5. Discussion and Analysis

This study examined the effect of incorporating Chat-GPT on the motivation and engagement of EFL students. The experimental group that used ChatGPT for learning revealed significantly higher motivation and engagement compared to those in the control group. These findings suggest that AI-powered language learning systems, such as ChatGPT, might be advantageous.

Multiple theories, such as the Technology Acceptance Model (TAM)<sup>[15]</sup> constructivist learning theory<sup>[16]</sup>, and Self-Determination Theory (SDT), reinforce this research, which supports ChatGPT as a cognitive and motivational instructional aid. Artificial intelligence solutions, including ChatGPT, provide fast and customized EFL learning. Non-judgmental and negative-feedback-free instruction promotes student motivation and confidence. ChatGPT's interactive tool enables modern language learners to enhance their understanding, use the language socially, and integrate new skills. Learners' post-test motivation ratings increased in the experimental group, suggesting AI-supported activities were more engaging and meaningful. According to Deci and Ryan's [17] self-determination theory, intrinsic motivation is driven by the need for autonomy and competence. ChatGPT's rapid and customized feedback could have helped EFL students feel more in control while decreasing their anxiety about making mistakes. The experimental group's increased engagement suggests that ChatGPT could help preserve student interest and participation. As AI-assisted exercises are dynamic and engaging, learners are more likely to engage with the content and complete assignments.

The findings corroborate the growing body of studies supporting the use of AI in language instruction. AI can improve grammar correction, conversational simulation, and vocabulary expansion, thereby enhancing student outcomes<sup>[42-44]</sup>. Suciati et al.<sup>[23]</sup> (2024) found that ChatGPT significantly enhanced intrinsic and extrinsic motivation, as well as cognitive, behavioral, and emotional engagement, in the experimental group compared to the control group. Güner and Er<sup>[45]</sup> found that the distribution of profiles differed significantly between treatments, and that a disparity existed between the post-test scores students obtained and their profiles of AI interactions. Similarly, Nguyen et al. [46] found that learners using ChatGPT employed additional strategies in prewriting and produced higher-quality texts than those who did not use ChatGPT. The two categories of students exhibited positive emotional engagement, but those utilizing ChatGPT revealed far stronger emotional responses. Karataş et al. [47] found that ChatGPT improved learners' writing and syntax and expanded their vocabulary, motivating and engaging them through its flexibility and availability across different learning activities. In a study examining the impact of ChatGPT on ESL students' academic writing skills, Mahapatra [48] found that learners appreciated ChatGPT, which significantly improved their academic writing by emphasizing it as an efficient writing tool and providing feedback as a collaborative tool for practical writing skills. However, there also exist a few studies [49,50] that noticed that these AI tools adversely impact students' analytical and creative skills. While they recognize and acknowledge the importance of ChatGPT and AI-powered apps, they raised a few concerns regarding how these tools impact language learners' capacity for creativity and analysis. Furthermore, Marrone et al.<sup>[51]</sup> expressed reservations about how artificial intelligence-driven technology might impact learners' capacity to think imaginatively.

The thematic analysis revealed that ChatGPT moti-

vated them to learn English. They regarded ChatGPT as a game-changing tool, offering them a fascinating and enjoyable learning environment, thereby describing it as an innovative and appealing language acquisition tool. It was observed that participants in the ChatGPT study gained confidence and independence. Without fear of judgment, they were able to take more risks and ask more questions than in traditional sessions. Several respondents claimed ChatGPT enabled them to examine and evaluate explanations at their own pace. The customized instruction, immediate feedback, and anxiety-free learning stimulated their learning curiosity and motivation. Self-determination theory says autonomy, competence, and relatedness inspire students [17]. This innovative aspect of ChatGPT seems to have positively motivated students.

Another pattern was students utilizing English beyond their classrooms. The participants reported using ChatGPT in their leisure time to complete homework, obtain answers, and explore English topics. The tool's ease of use and rapid results encourage regular use. Second language acquisition requires extended engagement, as regular exposure and active use of the language are essential for improvement. Several learners said that ChatGPT is personalized and engages them in learning. The technology was adaptable, allowing students to ask questions at their level and receive customized responses. Participants appreciated how ChatGPT simplified complex ideas in English and offered examples tailored to their interests. These customized interactions made learning more engaging, aligning with best practices in learner-centered education. It was revealed that ChatGPT increased the confidence, engagement, and motivation of EFL students.

#### 6. Conclusion

The study examined the impact of ChatGPT usage on students' motivation and learning engagement. The finding that ChatGPT adoption positively impacted the learners' motivation and engagement. It was revealed that ChatGPT could assist students in learning by offering freedom, individualized feedback, and collaborative language practice. These factors enhance motivation, classroom engagement, and English learning beyond the classroom. It was observed that ChatGPT enhanced their confidence, independence,

self-directed learning, and language skills, including vocabulary, grammar, and writing. The non-judgmental and accessible tool reduced learners' anxiety and encouraged linguistic exploration, a necessary step for achieving communicative competence and long-term language development. These findings imply that AI-powered tools like ChatGPT could render EFL instruction more learner-centered and engaging. The analysis additionally highlights meticulous implementation. To ensure that ChatGPT supports instructional aims and fosters meaningful human contact, teachers should facilitate its use by students. ChatGPT's lasting impact on language competency and differences by learner proficiency, age, and culture should be studied. Studying how educators adapt to AI integration will also highlight pedagogical impacts.

#### **Author Contributions**

F.A. and M.S. designed and authored the manuscript. M.J. and W.U.W. oversaw the intervention and revised the manuscript. All writers examined and authorized the article. All writers contributed equally. All authors have read and agreed to the published version of the manuscript.

#### **Institutional Review Board Statement**

Not applicable.

#### **Informed Consent Statement**

Informed consent was obtained from all subjects involved in the study.

## **Data Availability Statement**

The corresponding author can provide the data utilized to support this study's findings. Ethical and privacy issues prevent public access to the data.

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#### **Conflicts of Interest**

The authors declare that they have no conflict of interest.

## Appendix A

SA	A	N	D	SD

- 1. I enjoy learning new things.
- 2. I feel that learning is entertaining and fascinating.
- 3. I feel satisfaction in resolving a difficult task.
- 4. I study to learn, not merely to achieve a high grade.
- 5. I feel great when I accomplish a challenging assignment.
- 6. I study hard in classes to achieve high grades.
- 7. I complete my homework to avoid problems.
- 8. I am motivated to learn to achieve a good career.
- 9. I attend class for instructor compliments.
- 10. I complete my work because others expect me to.
- 11. I remain focused during my sessions.
- 12. I participate in class discussions.
- 13. I complete the assignments on time.
- 14. I follow classroom rules and instructions.
- 15. I feel a sense of happiness in the classroom.
- 16. I enjoy learning new things.
- 17. I feel like I belong at school.
- 18. I am excited about the subjects I am studying.
- 19. I ask questions when I cannot understand anything.
- 20. I strive to make the content interesting.
- 21. I go beyond what is needed to learn more.
- 22. I consider how my studies apply to real life.

#### Semi-structured interview questions

- 1. Does ChatGPT motivate you to study English? Why/why not?
- 2. Has ChatGPT enhanced your English study routine (vocabulary, grammar, essay writing)?
- 3. Do you spend extra time improving your English with ChatGPT?
- 4. Did ChatGPT increase your class or group participation?

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