INTEGRATING AI CHATBOT FOR SELF-REGULATED LEARNING TO IMPROVE ELT STUDENTS' REFLECTIVE WRITING SKILLS

THESIS

Submitted in Partial Fulfilment of the Requirements for Gaining the Bachelor's Degree in English Education

Arranged By:

ANANDA ROIHATUL JANNAH

NIM: 2103046142

ENGLISH EDUCATION DEPARTMENT

FACULTY OF EDUCATION AND TEACHER TRAINING

UNIVERSITAS ISLAM NEGERI WALISONGO SEMARANG

2025

THESIS STATEMENT

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I am a student with the following identity:

Name	:	Ananda Roihatul Jannah
Student Number	:	2103046142
Department	:	English Language Education

Certify that the thesis entitled:

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is purely my own work. I am responsible for the content of this thesis. The opinions and findings of other authors in this thesis are quoted or cited based on ethical standards.

Semarang, 20 March 2025

The Researcher,

Ananda Roihatul Jannah

NIM. 2103046142

RATIFICATION

KEMENTERIAN AGAMA REPUBLIK INDONESIA
UNIVERSITAS ISLAM NEGERI WALISONGO SEMARANG
FAKULTAS ILMU TARBIYAH DAN KEGURUAN
Jl. Prof. Dr. Hamka (Kampus II) Ngaliyan Telp. 024-7601295 Fax. 024-7615387 Semarang 50185

RATIFICATION

Thesis with following identify:

Title	: Integrating AI Chatbot for Self-Regulated Learning to Improve ELT Students' Reflective Writing Skills
Name	: Ananda Roihatul Jannah
Student Number	: 2103046142
Department	: English Education Department

Had been ratified by the board of examiner of Education and Teacher Training Faculty of Universitas Islam Negeri Walisongo Semarang and can be received as one of any requirements for graining the Bachelor Degree in English Education Department.

Semarang, 19 April 2025

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NIP. 199011052020122004

Examiner II,

Eka Harisma W, M.Hum
NIP. 198803092020122006

Advisor,

Vina Darissuravya, M.App Ling.
NIP. 199206242020122008

THESIS APPROVAL

KEMENTERIAN AGAMA REPUBLIK INDONESIA
UNIVERSITAS ISLAM NEGERI WALISONGO SEMARANG
FAKULTAS ILMU TARBIYAH DAN KEGURUAN
Jl. Prof. Dr. Hamka (Kampus III Ngaliyan Telp. 024-7601295 Fax. 024-7615387 Semarang 50185

THESIS APPROVAL

To:

The Dean of Education and Teacher Training Faculty

Walisongo State Islamic University Semarang

Assalamu'alaikum, wr.wb.

After correcting it to whatever extent necessary, we statute that the final project belongs to the student as below:

Name of Student	:	Ananda Roihatul Jannah
Student Number	:	2103046142
Department	:	English Language Education
Title	:	**INTEGRATING AI CHATBOT FOR SELF-REGULATED LEARNING TO IMPROVE ELT STUDENTS' REFLECTIVE WRITING SKILL**

I state that the thesis is ready to be submitted to the Education and Teacher Training Faculty of Walisongo State Islamic University to be examined at the Munaqosyah session.
Wassalamu'alaikum Wr. Wb.

Semarang, 20 March 2025

Advisor,

Vina Darissurayya, M.App Ling.
NIP. 199305132020122006

ADVISOR MARK

KEMENTERIAN AGAMA REPUBLIK INDONESIA
UNIVERSITAS ISLAM NEGERI WALISONGO SEMARANG
FAKULTAS ILMU TARBIYAH DAN KEGURUAN
Jl. Prof. Dr. Hamka (Kampus III Ngaliyan) Telp. 024-7601295 Fax. 024-7615387 Semarang 50185

NILAI PEMBIMBING SKRIPSI

Hal: Nilai Bimbingan Skripsi

Kepada Yth.
Dekan Fakultas Ilmu Tarbiyah dan Keguruan
UIN Walisongo Semarang
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Dengan hormat kami memberitahukan bahwa setelah kami selesai membimbing skripsi saudara:

Nama	:	Ananda Roihatul Jannah
Nim	:	2103046142
Jurusan	:	Pendidikan Bahasa Inggris
Judul	:	**INTEGRATING AI CHATBOT FOR SELF-REGULATED LEARNING TO IMPROVE ELT STUDENTS' REFLECTIVE WRITING SKILL**

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.....

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.....

Dengan ini agar dapat digunakan semestinya.

Wassalamu'alaikum Wr. Wb.

Semarang, 20 March 2025
Advisor,

Vina Darissurayya, M.App Ling.
NIP. 199305132020122006

ADVISOR NOTE

KEMENTERIAN AGAMA REPUBLIK INDONESIA
UNIVERSITAS ISLAM NEGERI WALISONGO SEMARANG
FAKULTAS ILMU TARBIYAH DAN KEGURUAN
Jl. Prof. Dr. Hamka (Kampus II) Ngaliyan Telp. 024-7601295 Fax. 024-7615387 Semarang 50185

ADVISOR NOTE

To:

The Dean of Education and Teacher Training Faculty

Walisongo State Islamic University Semarang

Assalamu'alaikum, wr.wb.

I inform you that I have given guidance, briefing, and correction to whatever extent necessary for the following thesis:

Title	:	**INTEGRATING AI CHATBOT FOR SELF-REGULATED LEARNING TO IMPROVE ELT STUDENTS' REFLECTIVE WRITING SKILL**
Name of Student	:	Ananda Roihatul Jannah
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I state that the thesis is ready to be submitted to the Education and Teacher Training Faculty of Walisongo State Islamic University to be examined at the Munaqosyah session.

Wassalamu'alaikum Wr. Wb.

Semarang, 20 March 2025

Advisor,

Vina Darissurayya, M.App Ling.

NIP. 199305132020122006

MOTTO

وَاَنِيْبُوْٓا اِلٰى رَبِّكُمْ وَاَسْلِمُوْا لَهٗ

“Turn to your Lord ˹in repentance˺, and ˹fully˺ submit to Him”

(Q.S Az-Zumar 54:39)

“Carpe diem, quam minimum credula postero.”

ABSTRACT

Ananda Roihatul Jannah. 2103046142, 2025, *Integrating AI Chatbot for Self-Regulated Learning to Improve ELT Students' Reflective Writing Skills*, Thesis, English Education Department, Universitas Islam Negeri Walisongo Semarang. Advisor: Vina Darissurayya. M. App Ling.

In developing personal and professional growth, English Language Teaching students are imposed to develop writing skills as the act to reflect on their teaching experiences more effectively. This reflective process becomes actionable in their reflective writing based on experiences with self-regulated learning (SRL). With the growth of technologies in recent years, in performing self-regulated learning is often facilitated by a variety of tools and technologies, which one of the prominent examples is Artificial Intelligence (AI) Chatbots. This study intends to find out the effectiveness of utilizing AI Chatbot (ChatGPT) as an instrument to support self-regulated learning in improving the reflective writing skills of 40 students in the eighth-semester of English Education department at UIN Walisongo Semarang in 2024/2025 academic year. The study used explanatory sequential mixed method with quantitative and qualitative approaches. The instruments of research used are tests and interviews. The collected data are statistically analyzed using the SPSS software to determine the independent sample test (hypothesis test), which resulting in a Sig. (2-tailed) value of 0.000 (< 0.05), indicating that H_0 is rejected, and H_a is accepted. Furthermore, the interviews results indicated that most students reveal an optimistic attitude against demonstrating self-regulated learning utilizing the AI Chatbot. It can be drawn to conclusion that the utilization of AI Chatbot efficaciously improves reflective writing proficiency of the students in the eighth-semester of English Education department at UIN Walisongo Semarang.

Keywords: ***AI Chatbot, self-regulated learning, ELT, reflective writing***

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The Researcher,

Ananda Roihatul Jannah

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CHAPTER I
INTRODUCTION

A. Background of the Study

In the realm of writing, reflection is called reflective writing. It is when an individual recalls as an intentional practice and having a contemplation with collective analysis of occurrences or state of mind and proceed to translate these into writing. Written reflection is commonly used by the educators to assess students' learning outcomes in tertiary and higher education. Specifically in many teacher education programs in universities, reflection and reflective writing also play as essential elements. Through the practice of reflection, students are given the opportunity to think deeply of their own and their peers' actions and experiences, which contributes to their personal and professional growth (Kolb, 1984; Schön, 1983).

As a teacher education program, the English Language Teaching (ELT) department is imposing the students to improve their writing skills. With the act of writing, for ELT students to reflect on teaching experiences is more effective. However, challenges are frequently encountered when it comes to writing in academic standard English reflection. Students with

deficiency in the required linguistic competence, thinking abilities, and motivational aspects are struggling the most. Therefore, they tend to perform poorly in assignments involving writing, which affects their academic achievement and professional development.

As a useful medium, reflective writing assists students in their learning process. This assertion is supported by Sudirman et al. (2024), who highlight the benefits of reflective writing in enhancing the academic achievement and practices of English Language Teaching (ELT) students. Moreover, the utilization of reflective writing impacts English Language Teaching (ELT) students, who are prospective educators, by augmenting their awareness and pedagogical practices (Moghaddam et al., 2020). Furthermore, reflective writing not only enables students to reflect on personal events but also fosters professional growth and reflective practice, which are instrumental in mediating professional learning (Marshall, 2019; Marshall et al., 2021).

Reflective writing effectively reinforces main ideas that enhance writing skills through impactful instructional strategies (Ahmed, 2019). Offering feedback over an extended period, such as throughout a semester, is critical for sustaining an effective timeline for reflective writing. This prolonged engagement with writing

processes cultivates self-confidence, fosters trust, and allows for more profound reflections on initial topics. In addition, the advantages of reflection are amplified through the integration of cooperation and research, as highlighted by Bashan & Holsblat (2017). Through reflection, students receive constructive feedback and corroboration, allowing them to augment their knowledge and life skills. This reflective process becomes actionable in their reflective writing based on experiences with self-regulated learning (SRL), as it has been acknowledged as a critical element in elevating students' academic achievement and process, and promoting their independent learning skills (Bandura, 1986; Zimmerman, 1989).

In performing self-regulated learning, it is often facilitated by a variety of tools and technologies, among which Artificial Intelligence (AI) is a prominent example. In recent years, AI has experienced significant development, serving as one of the branches in computer science that brings engines to emulate human intelligence and execute roles that particularly requiring human cognitive capabilities. Within the educational sphere, AI has developed as a tool that is capable for enhancing both language teaching and learning methodologies, providing learners personalized and interactive learning experiences (X. Huang et al., 2023). Consequently, using AI as a

language learning instrument offer learners with suggestions, and feedback to improve their linguistic skills, encompassing vocabulary, speaking, reading comprehension, grammar, and writing (Aladini et al., 2025; Feng, 2025; H. S. Kim et al., 2021).

Numerous studies have examined the impact of the utilization of AI as a tool for language learning on numerous perceptions and results among English Language Teaching (ELT) students. The incorporation of AI chatbots in English as a Foreign Language (EFL) setting has become increasingly prevalent, with research highlighting their effectiveness in enhancing motivation and satisfaction (Klímová & Ibna Seraj, 2023). These chatbots are particularly effective in fostering self-regulated learning and great attitudes among students (Maharsi, 2018). Specifically, in English speaking classes, AI chatbots have demonstrated their ability to promote students' engagement and improve task performance (Yang et al., 2022). They offer learners opportunities to practice language competences, get feedback, and involve in reliable and valuable interactions (W. Huang et al., 2022).

The incorporation of AI chatbots into educational settings, particularly in the context of English Language Teaching (ELT), can significantly augment the reflective

and productive competencies of student teachers across various practicum environments. This integration is grounded in several foundational principles, including the establishment of objectives, provision of feedback, and personalization, as outlined by (Chang et al., 2023). AI-driven instructional tools, such as chatbots, have been demonstrated to facilitate learner communication, deliver tailored feedback, and foster the advancement of self-regulatory and metacognitive abilities. Moreover, AI chatbots are recognized as efficacious instruments for assisting self-regulated learning and metacognitive abilities in educational contexts. They offer distinct benefits in personalized learning, skills enhancement, and student engagement, as highlighted by (Hsu et al., 2023; Labadze et al., 2023).

In conclusion, in order to address these studies, there is a need to implement an approach that can assist ELT students to enhance their reflective writing skills. The proposed study entitled “Integrating AI Chatbot for Self-Regulated Learning to Improve ELT Students’ Reflective Writing Skills”, which aimed to explore the effectiveness of utilizing AI chatbot (ChatGPT) to support self-regulated learning as a pedagogical tool. This research is performed in the department of English Language Teaching at UIN

Walisongo Semarang with a population of 40 students and in the 2024/2025 academic year.

B. Research Questions

Based on the background of the study above, the question of the study is as follows:

1. Are there any significant differences between the use of AI Chatbot and non-AI-supported self-regulated learning in students' reflective writing skills?
2. How do students perceive the use of AI Chatbot to support in their self-regulated learning to improve reflective writing skills?

C. Objective of the Study

Regarding the question of the study, the objectives are:

1. To find out the significant differences between the use of AI Chatbot and non-AI-supported self-regulated learning in students' reflective writing skills.
2. To find out the perceptions of the students concerning the use of AI Chatbot in supporting their self-regulated learning to improve reflective writing skills.

D. Significance of the Study

This section encompasses the advantage or utility of research for teachers, students, and researchers. The

researcher expect that this study would give advantages as follows:

1. The theoretical benefit

   The researcher hopes the readers will get to know further from the result of this study, where it examines the use of AI Chatbot as a supporting tool for self-regulated learning to improve reflective writing skills in ELT students.

2. The practical benefit

   a) Lecturers

      The result of this study can be a resource for lecturers about the use of AI Chatbot as a supporting tool for self-regulated learning to improve reflective writing skills in ELT students. It is expected that this tool can be utilized appropriately in language learning process.

   b) Students

      This study can help students to be encouraged to do self-regulated learning, focusing on improving their reflective writing skills. It is also expected to make the self-regulated learning process easier for students, and can be functional in the EFL and ELT classroom.

   c) Researcher

      This study can help researcher to finish her study

as one of the requirements in gaining Bachelor Degree in English Education Department and can provide helpful information for the readers.

E. Limitations of the Study

This study needs the scope to limit the information as the researcher conducted, and the limitations of this study are as follows:

1. In this study, the researcher centralized on the utilization of AI chatbot (ChatGPT) as a tool for self-regulated learning on ELT students in the eighth semester of UIN Walisongo Semarang.
2. The researcher investigated reflective writing strategy in an AI chatbot-based that is essential for ELT students' reflective writing skills.

CHAPTER II
REVIEW OF RELATED LITERATURE

A. Theoretical Review

This theoretical review serves as an explanation of reflective writing, self-regulated learning, and AI Chatbot.

1. Reflective Writing

Reflection is closely related to experience. Rodgers (2002) summarized the criteria for reflection suggested by Dewey, which states that reflection is a progression of meaning-making through connecting data with the students' prior experiences in depth and relate it to other ideas. Scanlan & Chernomas (1997), proposed three stages of reflection. The first stage begins with students' awareness of uneasiness or absence of information in clarifying something. The second stage requires critical analysis of concepts, situations, events, or knowledge needs while taking into account one's existing knowledge and the use of new information. The final stage is referred to as a new perspective that emerges as a result of analysis or after applying new information. The progression of reflection is applied in learning to achieve meaningful education. Ausubel (1962) defines meaningful learning as the process of linking new information to

related ideas within an individual's cognitive structure. This purposeful learning relates to students' experiences in terms of cognitive structure and experiences related to reflection.

Reflective writing serves as a potent mechanism for experiential learning and knowledge construction. The efficacy of reflective writing stems from its capacity to stimulate critical inquiry and facilitate the integration of diverse perspectives. Writers engaging in reflective practice cultivate a deeper understanding of subject matter by posing insightful questions and synthesizing prior knowledge with novel concepts through rigorous analysis. According to Williams et al. (2020), this iterative process of reflective writing promotes the acquisition of evidence-based insights, enabling writers to articulate nuanced arguments and present comprehensive analyses. Furthermore, reflective writing fosters the crucial link between theoretical frameworks and practical application, thereby enhancing content mastery, cultivating self-awareness, and promoting metacognitive development within specific disciplinary contexts (Williams et al., 2020). Through consistent engagement with reflective writing, individuals can refine their capacity for

critical evaluation and establish coherent connections between seemingly disparate concepts.

The integration of reflection into the writing process cultivates critical thinking skills and encourages deeper contemplation of complex issues. As Cogni (2019) asserts, the ability to articulate ideas in a reflective manner signifies the development of self-awareness and critical reasoning, ultimately fostering more effective communication strategies. However, the increasing prominence of reflective writing has engendered scholarly debate, primarily due to concerns regarding its potential to promote informality and undermine objectivity. Critics argue that the familiar tone adopted in reflective writing may compromise analytical rigor and that its emphasis on personal experience can impede impartial assessment. Despite these concerns, proponents maintain that reflective writing, when executed thoughtfully, can provide as a useful instrument for fostering critical inquiry and promoting a more nuanced understanding of complex phenomena, without sacrificing scholarly integrity.

Heron & Corradini (2023) contend that reflective writing encompasses identifiable linguistic, generic, and rhetorical characteristics, which can be analyzed

using genre-analysis methodologies, thereby underscoring its extensive prevalence. Nonetheless, the recurrent application of the term "reflection" implies a potential diminishment of its scientific integrity due to an excessive focus on informality. Furthermore, reflective writing may reveal students' insufficient depth of reflection and comprehension, often resulting from ingrained behavioral patterns (Avarzamani & Farahian, 2019). Despite these challenges, students should be encouraged to utilize linguistic structures to enhance their articulation of ideas within reflective writing. Consequently, Liang et al. (2016) advocate for the employment of reflective language to establish a robust foundational knowledge base, facilitating the integration of critical thinking into substantive reflections. These insights emphasize the significance of reflective writing in professional contexts that adhere to specific guiding principles. The objection lies in circumventing the pitfalls associated with routine reflections, necessitating that writers uphold an academic viewpoint.

Reflective writing is frequently associated with a participatory framework that fosters liberty and inclusivity in the expression of ideas. It has evolved into a communicative instrument that enables writers

to engage in reflection, maintain connectivity, participate actively, and incite action (Abiolu, 2022). These attributes enhance the value of reflective writing by integrating elements such as reflection, engagement, feedback, rationales, and profound learning (Lefroy et al., 2021). This indicates that reflective writing typically commences with brainstorming ideas and culminates in discussions addressing specific concerns. Students employ reflective writing as a means to refine their writing abilities. Through this implementation, they produce tasks that encapsulate the results of discussions and mentorship experiences. Reflective writing serves as an effectual mechanism for conceptual development and sharpening reflection (Gadsby, 2022). Such tasks often incorporate rubrics (Tilakaratna, 2023) to facilitate periodic self-assessment or peer evaluation of competencies.

One of the most significant frameworks for reflective writing is Schön's model, which delineates the process into distinct phases: pre-experience, during the experience, and post-experience—encompassing reflection for, in, and on action. This structured approach encourages individuals to document their thoughts and emotions at various stages, thereby

enhancing the authenticity of the reflections and facilitating deeper contemplation, adaptation, and personal development of the writer. According to Schön (1983), reflective writing necessitates substantial descriptive elements. Conversely, Morrison (1996) characterizes reflective writing as a method of self-assessment that can foster personal growth as the writer seeks to derive value from their events or emotions. Consequently, the resultant reflective narrative is inherently personal yet critically engaged; it transcends mere summarization of events to incorporate critical thinking, analytical engagement, evaluation, and synthesis essential for meaningful writing.

Moon (2004) emphasizes that reflective writing should be executed systematically: establishing a pure objective for reflection, articulating foundational observations, and supplying supplementary evidence are integral components that culminate in coherent reflective writing. Gibbs' (1988) model further elaborates on the stages of reflection by including experience description, emotional articulation, evaluative engagement, analytical reasoning, conclusion drawing, and action planning. This comprehensive staged approach to reflective writing

informs the methodology used in this study. Furthermore, the components of writing used to assess are comprised of content, organization, grammar, vocabulary, and mechanic. As content refers to the significance of the writer's topic, the depth of the writer's knowledge and analysis of the topic. The organization consists of description, interpretation or analysis, and the outcome or evaluation, which the writer needs to ensure the clarity and coherence. The grammar encompasses the rules and conventions that govern language usage, ensuring the writings to be comprehensible. The vocabulary encompasses the use of words that accurately represent ideas within the text. And mechanic, which refers to the conventions of print including spelling, punctuation, and capitalization.

In spite of the potential advantages youths and young adults may derive from involving in reflective writing—including individual growth and enhanced metacognition—this specific approach of writing poses psychological, cognitive, and linguistic challenges for students. The intricacy inherent in reflective writing necessitates advanced cognitive skills that amalgamate cognitive and emotional insights with synthesis and evaluative processes (Feuerstein & Jensen, 1980; Kolb, 1984). Thus,

students must possess an understanding of the intricate reflective abilities, developments, and categories necessary for effective engagement in reflective writing; those lacking such knowledge may encounter significant cognitive deficits. It is also mentioned, the accentuation to perform reflection, in Al-Quran Surah AL-Hasyr : 18

يٰٓاَيُّهَا الَّذِيْنَ اٰمَنُوا اتَّقُوا اللّٰهَ وَلْتَنْظُرْ نَفْسٌ مَّا قَدَّمَتْ لِغَدٍۚ وَاتَّقُوا اللّٰهَۗ اِنَّ اللّٰهَ خَبِيْرٌۢ بِمَا تَعْمَلُوْنَ

"O believers! Be mindful of Allah and let every soul look to what "deeds" it has sent forth for tomorrow. And fear Allah, "for" certainly Allah is All-Aware of what you do."

From the verse of Al-Quran above, the researcher concluded that Allah SWT emphasizes the importance of self-reflection. This verse along with Al-Alaq : 4-5, where Allah SWT commands to seek knowledge, attain literacy, and articulate thoughts into written form, can be argued that it is crucial for the broader pursuit of knowledge and wisdom within the community.

2. Self-Regulated Learning

In the realm of language education, self-regulated learning (SRL) is extensively acknowledged, with numerous studies highlighting its critical importance in enhancing academic accomplishment and fostering independent learning capabilities among students, specifically within language learning environments. Schunk & Zimmerman (1994) describe self-regulated learning as "the process whereby students activate and sustain cognition, behaviors, and affects, which are systematically oriented toward attainment of their goals." The techniques employed by students to regulate their learning encompass cognitive, metacognitive, and motivational strategies (Panadero, 2017).

Examples of metacognitive strategies include goal-setting, monitoring learning progress, soliciting assistance, and reflecting on the effectiveness of the employed tactics to achieve objectives (Pintrich, 2004; Zimmerman, 2008). Given that writing necessitates planning, drafting, revising, and editing, the role of self-regulated learning becomes particularly salient. Challenges such as insufficient social presence, engagement, and feedback associated with writing can adversely affect motivation and self-efficacy.

Consequently, it is imperative for students to implement self-regulated learning approaches to enhance their writing competencies and results (Huang, 2010; Zimmerman, 2000).

Self-regulated learning incorporates crucial components that are fundamentally necessary in English as a Foreign Language (EFL) education; therefore, it may be pivotal in aiding students to cultivate and augment their reflective writing skills. Identified as a key aspect in improving students' academic growth and nurturing their capacity for independent learning (Bandura, 1986; Zimmerman, 1989), self-regulated learning encompasses critical aspects of the development of learners' independently such as planning, goal-setting, self-motivation, strategy utilization, self-evaluation, attention control, self-monitoring, and looking for assistance. However, for learners to thrive in such autonomous settings, they must engage in effective self-regulated learning practices.

Self-Regulated Learning (SRL) is a cyclical framework comprising three distinct phases: forethought, performance, and self-reflection. The forethought phase encompasses the preparatory activities undertaken prior to engaging in learning,

such as establishing objectives and formulating plans. The performance phase involves the ongoing assessment of in case the learning process and approaches employed by students align with the objectives established in the initial phase. The reflection phase pertains to the evaluation conducted by students regarding their learning experiences, allowing them to contemplate the various steps taken to enhance their performance in future learning endeavors (Zimmerman, 2000).

These three phases of self-regulated learning incorporate diverse strategies that assist learners in regulating their educational processes across four domains: cognitive, metacognitive, motivational, and behavioral. The cognitive domain pertains to the specific cognitive strategies utilized by learners during their educational activities. Metacognition involves the learners' capacity to reflect on, comprehend, and manage their own learning processes. The motivational domain addresses the various beliefs persons may hold concerning their own learning capabilities. Finally, the behavioral domain reflects the overall hard work exerted by students throughout their educational journey (Zimmerman, 2000).

Moreover, self-regulated learning is pivotal for the professional development of language educators, as it fosters the cultivation of expressive and creative competencies. English as a Foreign Language (EFL) student instructors can evolve into more independent students competent of recognizing their advantages and disadvantages, establish objectives, devising plans, monitoring their progress, and evaluating results through active participation in self-regulated learning activities (Abadikhah et al., 2018). These elements are crucial for effective written performance, which necessitates a considerable mark of organization and self-confidence.

3. AI Chatbot

Students' self-regulated learning (SRL) is expected to be enhanced by a diverse array of artificial intelligence (AI) applications. AI serves as the cornerstone for AI chatbots, which are defined as "the capacity of machines to perform tasks typically associated with human intelligence, such as reasoning, problem-solving, self-improvement, and experiential learning" (Richards & Schmidt, 2013). As a specialized domain within computer science, AI allows machines to emulate human cognitive abilities

and execute tasks that generally involve human intellect.

In the scope of education, AI has developed as a significant asset for improving language acquisition and pedagogical strategies, offering self-modified and interactive learning process for students (J. E. Hughes et al., 2020). AI-facilitated language learning instruments can offer suggestions, and customized feedback that assist learners in refining both their primary and secondary language competencies, encompassing vocabulary, speaking writing, grammar, and reading comprehension, (Kim et al., 2013). Furthermore, from a psychological standpoint, these AI-driven instruments can enhance learners' motivation, engagement, and self-directed learning—essential elements for attaining language proficiency and fostering independent study habits (Hsu et al., 2023; Yuan & Liu, 2025).

ChatGPT, an AI-enabled resource, can be effectively employed in the context of language learning to aid students in improving their linguistic abilities and sub-skills (Fang et al., 2023; Schmidt-Fajlik, 2023; Su et al., 2023; Yan, 2023). It offers learners with crucial feedback and guidance across numerous dimensions of language acquisition, thereby

bolstering their overall linguistic proficiency. Additionally, ChatGPT generates grammatically accurate sentences, which assists learners in producing well-organized written content. This AI tool is also adept at understanding human inquiries and delivering optimal responses.

Numerous investigations have scrutinized the ramifications of AI-assisted language learning instruments on diverse results and insights among students of English as a Foreign Language (EFL). One of them is research by Xu et al. (2023), which identified that language learning instruments incorporating speech recognition substantially enhanced students' practices and engagement. In a meta-analysis evaluating the influence of AI on educational outcomes and learner perceptions, Zheng et al. (2023) concluded that AI exerted an additional significant influence on academic achievement than on learner insights. Likewise, Utami et al. (2023) discovered how AI-supported language learning influenced the academic writing skills of three Indonesian EFL learners. Demonstrating that this methodology enhanced their writing by supplying comments, essential feedback such as alternative sentence constructions.

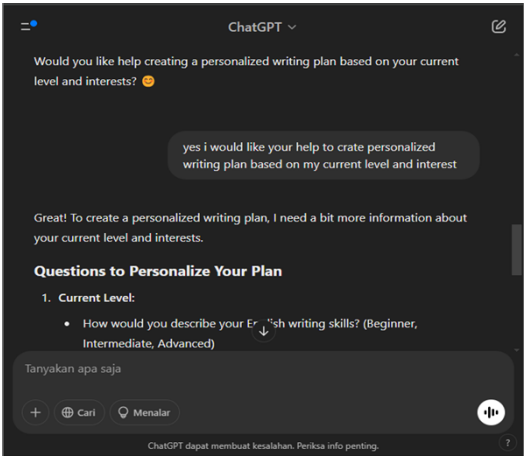
These findings propose that AI-supported language learning instruments possess the capacity to revolutionize language education by delivering self-modified learning experiences made to all person requirements and partialities. Nonetheless, obstacles and boundaries connected with the incorporation of AI into language instruction persist, encompassing various social, ethical, and pedagogical dilemmas that necessitate consideration. Therefore, further investigation is imperative to inspect the influences, sustainability, and generalizability of AI-assisted language learning, in addition to establishing evidence-based procedures and optimal practices for researchers and educators aiming to incorporate AI-enhanced platforms into language learning and teaching.

To effectively harness AI chatbots in educational contexts—particularly in language acquisition—it is vital to formulate pedagogical fundamentals that resonate with educational objectives. The primary fundamental is setting goal, which motivates students to articulate exact learning targets and keep track of their progression. By embedding goal setting within AI chatbots, learners are authorized to have the possession of their educational journey and cultivate

self-regulated learning (SRL) competencies (Chang et al., 2023). There are steps to follow for students to implement ChatGPT in their self-regulated learning process, as follows: On your device, go to chatgpt.com or the mobile app. Before starting to use it, you need to log in or sign up using your google account. The first thing you need to do is setting goals by prompting ChatGPT to establish the learning objectives according to your learning need. Then, ChatGPT will ask you some questions regarding your current level and interests in writing. In utilizing AI chatbots, prompting refers to the instructions given by users in the form of question, sentence, or description for the AI Chatbot to produce response or output.

Figure 2.1

Prompting to 'Set Goals' with ChatGPT



The second principle pertains to self-assessment and feedback, which is a critical element of self-regulated learning. Artificial intelligence chatbots can offer forehanded and helpful feedback, enabling students to identify their advantages and parts requiring enhancement. This feedback is able to be modified to get the exact wants of each learner, thereby facilitating targeted support and interventions (Chang et al., 2023). Following the steps, students can ask ChatGPT to directly give feedback for their writing based on the previous personalized writing improvement plan.

Figure 2.2

Feedback from ChatGPT

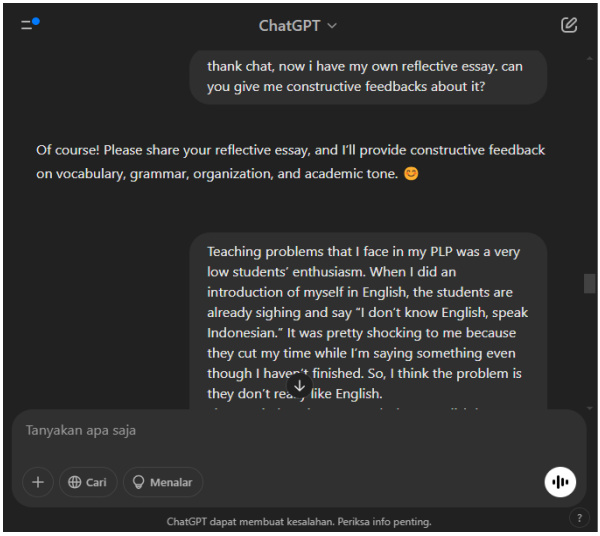


Figure 2.3

Feedback from ChatGPT

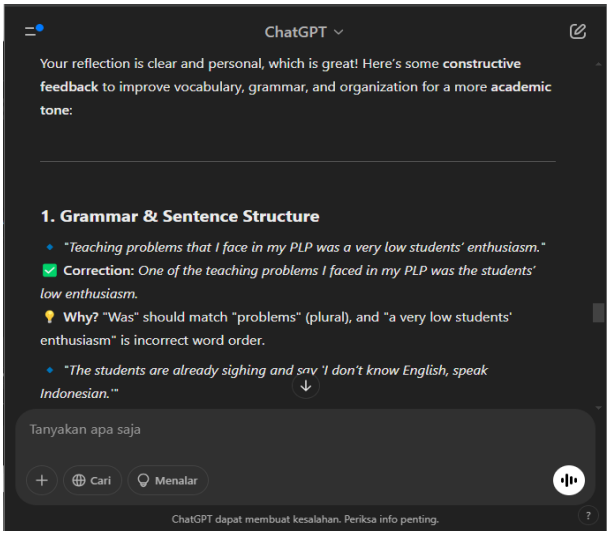
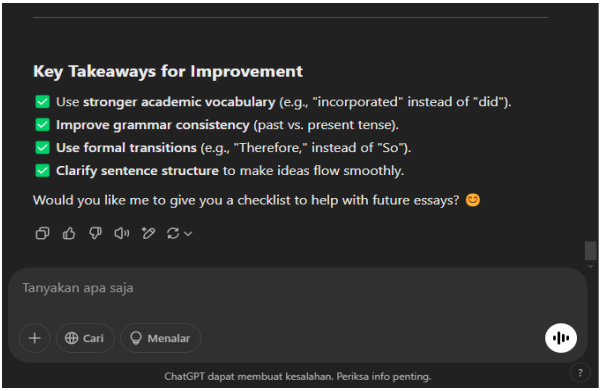


Figure 2.4

Feedback from ChatGPT



The third principle involves personalization, which is vital for the affectual combination of AI chatbots in educational settings. By customizing the educational event, these chatbots are able to address the distinct requests and partialities of individual learners through adaptive learning processes that modify content and instructional delivery constructed from students' information (Chang et al., 2023). For instances, students can ask ChatGPT to not give the correct revised version of the writing. They can personalize the feedback to resemble the learning process they want.

Figure 2.5

Personalize ChatGPT's Feedback and Suggestion

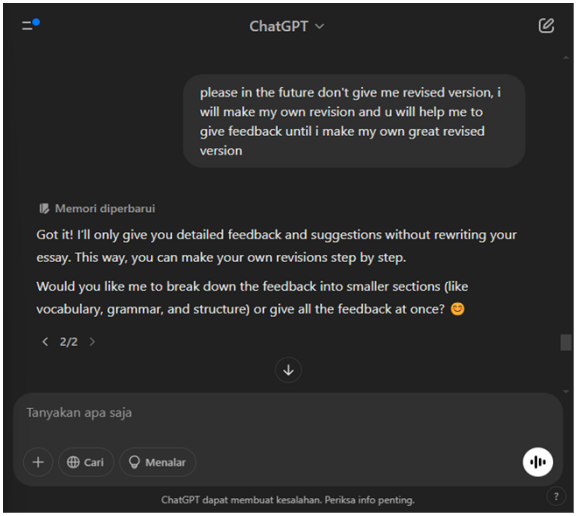
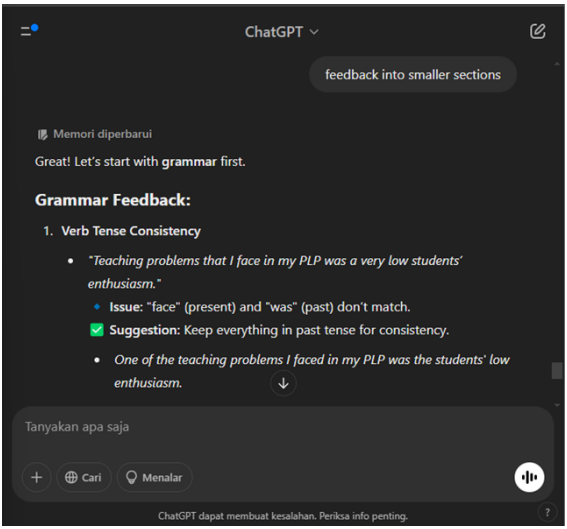


Figure 2.6
Personalize ChatGPT's Feedback and Suggestion



Incorporating goal setting, feedback, and personalization into AI-driven pedagogical frameworks can authorize students to develop as self-regulated learners. Moreover, it brings advantages for educators by leveraging the capabilities of AI chatbots because it can cultivate a learning setting that endorses independent, accountability, and lifelong learning.

B. Previous Research

There are several related studies regarding this research. Researchers explain this study from previous studies that have similarities and differences that can be

used for the review.

First, research conducted by Kim et al. (2021) explored the impact of AI chatbots on the speaking proficiency of English as a Foreign Language (EFL) students, as well as the subsequent influences on students' enthusiasm and speaking experiences within the classroom context. This investigation employed a pre- and post-test design involving 49 university students registered in an English course. The participants were categorized into two proficiency groups: low and intermediate. Throughout a semester, they engaged with three AI chatbots— Google Assistant, Replika, and Andy—for durations of 10 to 15 minutes per class. The study evaluated the participants' advancements in speaking skills, encompassing aspects such as intonation, pressure, effortlessness, content, and articulation. Additionally, a questionnaire was managed to gauge students' perceptions and attitudes regarding the use of chatbots.

The results exposed substantial variances in the speech capabilities of the two groups concerning intonation, stress, and content. Overall, students expressed favorable views regarding the use of chatbots, asserting that these tools enhanced their English proficiency, provided opportunities for language practice, and fostered a comfortable and engaging learning atmosphere.

However, they also identified several limitations associated with chatbots, including ineffective communication, challenges in error detection, and a limited range of topics. The study concluded that AI chatbots can enhance motivation and communication skills among EFL students regardless of their proficiency levels. Furthermore, it offered numerous references and suggestions for the integration of chatbots in EFL educational contexts.

The gap between the first study with this research is the skills the researchers tried to enhance, which is speaking skills, encompassing aspects such as intonation, pressure, effortlessness, content, and articulation meanwhile in this study researcher focused on the writing skills specifically in the genre of reflective text. Moreover, the AI tools they used in the previous study were Google Assistant, Replika, and Andy which are differed with the current study. This study utilized ChatGPT as the only AI tool that is selected with various consideration, such as ChatGPT is the most popular tool among ELT students which makes it familiar and accessible to use, and how ChatGPT has superior linguistic ability compared to other AI chatbots, which prominent in understanding context and generating text. The previous study also integrates AI chatbots into the students' learning activity in class with

the durations of 10 to 15 minutes per class which differed from this study. In this study, researcher adapted self-regulated learning into the students' learning activities in or out of class. Students are not limited with period of time and exempt to integrate AI chatbot into their independent learning activities.

Second, research conducted by Belda-Medina & Calvo-Ferrer (2022), titled "Using Chatbots as AI Conversational Partners in Language Learning," investigated the role of chatbots as AI conversational partners in the context of language learning among prospective educators. This study focused on participants' knowledge, satisfaction levels, and insights concerning the incorporation of chatbots into their learning experiences. Conducted over a four-week period, the research employed a mixed-methods and involved 176 undergraduate students. The researchers developed a learning module specifically centered on Artificial Intelligence and language learning, which included an ad hoc framework known as the Chatbot-Human Interaction Satisfaction Model (CHISM). This module was utilized by future teacher to evaluate several language and technological attributes of three conversational agents.

The findings indicated that chatbots provide language students with chances to enhance their

communication proficiency within authentic and naturalistic contexts while simultaneously receiving support and feedback from the chatbots. Additionally, it was found that chatbots can foster improvements in learners' motivation, self-confidence, enthusiasm, and understanding of artificial intelligence and chatbot technologies. Although chatbots can serve as supplementary resources within language learning environments, they should not replace human peers or instructors due to their inherent limitations, particularly concerning ethical considerations, accuracy, and adaptability. Furthermore, chatbots can be customized to align with the individual requirements, preferences, objectives, and learning styles of each language learner.

The gap between the second research with this study is the source of data which focused on students' communication skills that is supported with AI chatbots, meanwhile this study focused on students' reflective writing skills. The researcher in the previous study also used an independently developed learning module which adapted a framework known as the Chatbot-Human Interaction Satisfaction Model (CHISM) that centered on Artificial Intelligence and language learning. This differed with the current study that the lesson plan adapted the framework of self-regulated learning.

Third, another study by Liu et al. (2023) investigated a mechanism for promoting reflective thinking through an AI-supported English writing approach aimed at deepening and enhancing learners' cognitive processes while simultaneously improving their English as a Foreign Language (EFL) writing quality and performance. This research centered on a learning method that incorporate automatic writing assessment and peer assessment, grounded in knowledge-building theory. The belief was that students would enhance their reflections on feedback from automatic writing evaluations through peer assessments, thereby improving their EFL writing achievement and progress.

To assess the efficacy of this instructional model, a quasi-experimental study was employed within an EFL writing class at a university. The initial class, comprising 33 students, served as the experimental group utilizing the proposed strategy, whereas the subsequent class, consisting of 31 students, functioned as the control group receiving AI-supported EFL writing instruction that is conventional. The outcomes demonstrated that the projected model remarkably improved the English writing of students in the experimental group. Additionally, it positively affected their self-efficacy while extensively reducing their cognitive load.

The gap between the third study with this research is the framework, while the previous research focused on integrating AI-supported learning into the class activities, the current study focused on integrating AI chatbots into students' learning activities through adapting the self-regulated learning framework. This framework helps students to integrate AI chatbots as a supporting tool, emphasizing the aspects of forethought, performance, and self-reflection. Moreover with the framework of self-regulated learning in the period of this study, students are encouraged to incorporate AI chatbots in and out of class which is not limited by period of time and space.

Fourth, this investigation centered on the probable application of ChatGPT, as an artificial intelligence chatbot, in supporting English language learning among students at Northern Border University conducted by Mohamed (2024). Employing a survey design, the study utilized in-depth interviews as the primary method of data collection. Participants consisted of faculty members, and the results revealed a spectrum of opinions regarding the efficacy of ChatGPT. While some faculty members recognized its utility in delivering rapid and accurate responses to a diverse array of inquiries, others voiced concerns that ChatGPT could impede the development of students' critical thinking and research skills, and

potentially perpetuate biases or misinformation. The study sample generally perceived ChatGPT as a valuable tool for complementing and augmenting traditional English as a Foreign Language (EFL) teaching methodology. Nonetheless, the faculty members acknowledged ChatGPT's merit as an instructional aid and recommended further empirical research to rigorously evaluate its effectiveness. The study underscores the potential of ChatGPT as a resource for enhancing EFL students' English language proficiency.

The gap between the fourth study with this research is the research design and the data. The previous research focused on qualitative approach with survey design that resulted on the different opinions from the faculty members as the respondents. The utilization of AI chatbots, where it serves fast and accurate feedback is recognized as a benefit that can support learning process while concerns are also conveyed regarding the overreliance of AI chatbots that can hinder students' critical thinking and research skills. This differed from this study where researcher employed not only qualitative approach but also quantitative (mixed methods), where the quantitative approach is used to find out the effectiveness of AI chatbots in supporting students self-regulated learning to improve their reflective writing skills. This also

differed the resource data, the previous used only interviews while this study used writing test and interviews. Moreover, the qualitative data from the previous study is gathered from the faculty members while this research used ELT students' perceptions.

From the four relevant studies above, it can be concluded that this study related with those studies since they also investigate the use of AI chatbots in supporting students learning even though the framework, research design, and the source of data are different from this study. Moreover, this study is specified to find out the significant differences between the use of AI Chatbot and non-AI-supported self-regulated learning in students' reflective writing skills and to find out the perceptions of the students concerning the use of AI Chatbot in supporting their self-regulated learning to improve reflective writing skills.

C. Conceptual Framework

Firstly, the input component encompasses AI chatbot (ChatGPT) as a teaching tool. The instructor's ability to explain the way to use an AI chatbot (ChatGPT) and extenuate the activity is also regarded an input factor.

The second component is the process, which encompasses the use of AI chatbot (ChatGPT) in class and students' self-regulated learning period. It includes the

instructor's instructions and students' participation during the lesson and tasks.

The third component is the output, which includes the students' enhanced reflective writing skills. Pre-test and post-test can measure this.

The fourth component is the feedback mechanism, which includes the instructor's assessment of the effectiveness of the AI chatbot (ChatGPT) as a self-regulated learning instrument and students' feedback on their satisfaction and perceived effectiveness in cultivating their reflective writing skills.

D. Hypothesis

In this research, researchers made the hypothesis that using an AI chatbot for self-regulated learning is effective for students to advance their reflective writing skills.

These are 2 possibilities for the hypothesis:

H_0: AI chatbot is not an effective self-regulated learning tool to improve students' reflective writing skills.

H_a: AI chatbot is an effective self-regulated learning tool to improve students' reflective writing skills.

CHAPTER III
RESEARCH METHOD

A. Research Design

In this study, the researcher uses scientific methods to obtain data with certain goals and purposes. In general, the data that has been obtained from research can be utilized to comprehend, unravel, and forestall problems (Creswell, 2014). The researcher utilized explanatory sequential mixed method design with quantitative as the main approach and qualitative data to support the initial quantitative results. For the quantitative approach, researcher used a pre-post quasi experimental design, which the comparison of participants' reflective writing skills prior to and subsequent to the intervention. Then researcher follows up with qualitative interviews to builds directly on the quantitative results.

These methodological frameworks were particularly appropriate for measuring the influence of an intervention on a specified group of participants in an extended duration. The pre-post design enabled a systematic assessment of skills levels before and after the intervention, thereby yielding insights into the effectiveness of integrating of AI chatbot with self-regulated learning. The intervention was consisted of a teaching and learning activities that incorporated self-

regulated learning assisted with ChatGPT, with the objective of enhancing the participants' proficiency by engagement in authentic and valuable language learning assessments.

The specific design for quasi-experimental that will be employed in this research is the non-equivalent control group design. The variables include independent variables and dependent variables. The use of ChatGPT as an instrument for self-regulated learning is symbolized by "X" which means the independent variable and the students' reflective writing skills is symbolized by "Y", which means the dependent variable. This study used two groups for comparison. The first is an experimental group that was given an intervention by utilizing ChatGPT as a tool for self-regulated learning. The second one is a control group that was not given a treatment by using ChatGPT as a tool for self-regulated learning and was treated by conventional strategy. In summary, the study is designed by the table below:

Table 3.1

Experimental Research Design

Group	Pre-test	Treatment	Post-test
Experimental	O_1	X	O_2
Control	O_3	-	O_4

Note:

O_1 : Pre-test for experimental group

O_2 : Post-test for experimental group

O_3 : Pre-test for control group

O_4 : Post-test for control group

X : Receiving treatment

\- : Non-treatment

B. Research Setting

1. Place and Time of Research

In this study, the researcher obtained the data from writing tasks and interviews in the English Language Teaching/English Education Department at UIN Walisongo Semarang involving 40 undergraduates as participants. The research was conducted for 2 weeks, from 9 February to 21 February 2025. The allocated duration was sufficient time to facilitate the implement of the treatment, administer the pre-test and post-test, conduct interviews, and perform analysis of the results. Conducting the study within this defined timeframe assured methodological steadiness and minimalized the influence of outside variables on the findings. In addition, conducting the study within this predetermined timeframe allowed the researcher to be

able to organize the research process and achieve the set data collection and analysis in an efficient manner.

C. Subject of Research

1. Population and Sample

A population is defined as a collective of individuals who shares the same characteristic. In the context of research, it is not essential to examine every individual or object within a population, and rather using only some representative samples are appropriate to draw meaningful conclusions (Creswell, 2014). Purposive sampling technique is utilized as the sample method in this study, which takes into consideration of certain factors. Consideration taken in this study is the necessity for two homogeneous groups that accurately embody the characteristics of the population well.

The participants researcher took are from the two classes in the Department of English Education at UIN Walisongo Semarang, where they are in eighth semester of study and the academic year 2024/2025. The total population is around 150 students. The study employed purposive sampling technique as its sampling method. As noted by Muijs (2011), quasi-experimental research entails that the control and

experimental groups be as similar as possible to variables such as gender, accomplishment, and ability. So, the sample of this study comprised of 40 students, with 20 students from class C and 20 students from class D. Because both classes have similar characteristics and GPA. The similar characteristics possessed by the students of both classes are:

a. Accustomed to or have used ChatGPT as an assistant tool for the students' academic needs.
b. Undergone Pengenalan Lapangan Persekolahan 2 or have an experience teaching English at school.
c. Average GPA exceeding 3.20.

D. Data Collection Technique

The data collection method entails documenting events, objects, or characteristic of certain or all data components that will be beneficial for study. In this study, the data was acquired through a writing test and interview.

1. Writing test

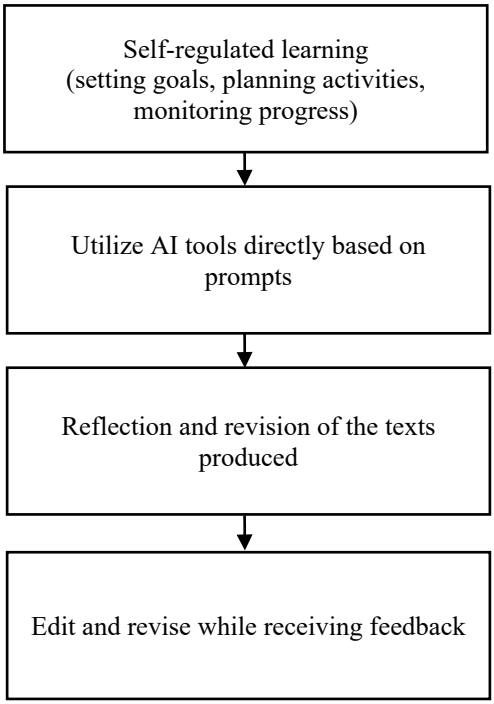
In the writing test, the instruments used include a pre-test and a post-test (**see Appendix 1**). A pre-test was distributed before the intervention in order to assess the participants' skills in reflective writing. The

result of the pre-test is intended to set up a starting point for the participants' skills and provided as a stake of comparison for the results of post-test. The pre-test was intended to measure the precise skills of reflective writing recognized as essential for the target participants.

The intervention involved the employment of a teaching and learning activities designed around the principles of self-regulated learning, supported by AI Chatbot, which is ChatGPT. The utilization of ChatGPT within the lesson plan expected to deliver personalised and interactive support for the enhancement of reflective writing skills. During the implementation of the intervention, the participants occupied with ChatGPT as part of their learning activities, with the objective of improving their language skills and self-regulated learning process.

Figure 3.1

Lesson plan outline of self-regulated learning supported with ChatGPT.



The lesson plan comprises of four phases: preparation, implementation, reflection, and evaluation. Each phase encompasses distinct learning activities and procedures utilized in this context, as outlined below:

1. Preparation Phase: In this phase, the purpose was to integrate ChatGPT into the learning process and

train the students on how to use them effectively. The learning activities and procedures included: (1) Introducing the ChatGPT to the students and explaining their features, functions, and benefits. (2) Providing demonstrations and practice sessions for the student to familiarize themselves with the chatbot and its interface. (3) Establishing clear expectations and guidelines for the student on how to use the chatbot for self-regulated learning.

2. Implementation Phase: In this phase, the purpose was to engage the students with the ChatGPT and practise their language skills through real-time conversations. The learning activities and procedures included: (1) Conducting self-assessment activities for the student to identify their strengths and weaknesses in language proficiency and determine their learning needs and preferences using online surveys. (2) Assign different topics, scenarios, or tasks for the student to interact with the chatbot and practice their language skills. (3) Encouraging the student to use the direct input and feedback features of the chatbot to improve their language accuracy and fluency. (4) Monitoring and supporting the students' interaction with the chatbot and

providing additional guidance, feedback, or resources as needed.

3. Reflection Phase: In this phase, the pupose is to foster the students' reflective writing skills by asking them to write about their experiences with the ChatGPT. The learning activities and procedures included: (1) Providing prompts and questions for the student to reflect on their interaction with the chatbot and their learning outcomes. (2) Facilitating peer review activities for the student to exchange their reflective writings and provide constructive feedback to each other. (3) Encouraging the student to use the feedback from their peers and the chatbot to revise and improve their reflective writings.
4. Evaluation Phase: In this phase, the purpose was to evaluate the students' progress and results of the learning activities. The learning activities and procedures included: (1) Inthegrating the feedback from the peers and the chatbot into the students' learning paths and upcoming interactions. (2) Administrating post-test to evaluate the students' language ability and self-regulated learning skills following the engagement with the chatbot intervention.

After the intervention given, post-test is implemented to measure the participants' level of reflective writing skills. The pre-test and post-test comprised of one task: a reflective writing assignment in which participants were required to compose a reflective essay regarding a teaching problem they met while undergoing the fieldwork in schools in Semarang. The task was scored by researchers using the same rubric as the assignments.

2. Interviews

The researcher developed a set of questions to be asked to the participants in experimental class. In this research, interviews are regarded as a valuable method for gathering information connected to problems in social situations by directly listening to the respondents' understanding or experiences. Additionally, the researcher opted to attain ELT students' insights after the use of ChatGPT in their self-regulated learning, specifically to improve their reflective writing skills (**see Appendix 2**). A semi-structured interview is a data collection method in which the interviewer prepares an interview guide prior to the interview but does not adhere to it

rigorously in terms of the questions' sequence or their phrasing.

E. Validity and Reliability of the Instruments

1. Validity

In order the test is said to be valid in research, it must be measured precisely what it is proposed to measure (A. Hughes, 2003). According to Gay (2000), validity directs to the degree to which appropriate interpretations can be made from the test scores. Furthermore, Gay elaborates four varieties of validity with different use and function, which are content validity, criterion related validity, construct validity, and consequential validity.

Content validity is employed to evaluate the alignment between the test's content and the domain it intends to measure. According to Gay, this type of validity lacks a definitive formula and cannot be expressed quantitatively. Instead, content validity emphasizes how effectively the test items represent the specified area. Determining content validity involves assessing the relevance of the material presented to the students. In this research, content validity was used to ascertain the test's validity, ensuring that the

assessment administered to the students was grounded in the material they had learned.

2. Reliability

According to Gay (2000), reliability refers to the extent to which a test constantly measures the construct it purports to assess. This consistency is evidenced by the instrument's ability to yield similar results when measuring the same subject across different occasions. Thus, reliability serves as an indicator of the quality and stability of test scores.

In this study, the researcher employed interjudge (interrater) reliability, which entails that the test scores were assessed by multiple evaluators. Specifically, the writing scores of the students were appraised by two independent raters.

F. Data Analysis Technique

Creswell (2008) posits that descriptive statistics encompass the representation of data through measures such as mean, mode, and median. Additionally, the dispersion of scores is characterized by variance, standard deviation, and range, while relationships among scores are elucidated through percentile ranks. Inferential statistics involve the comparison of two or more groups regarding the independent variable in relation to the dependent

variable. This statistical approach is designed to facilitate generalizations about a population based on data obtained from a sample.

The data in this study are the writing tests of the students that are collected, analyzed, and scored. The result was assessed by relating to five components, which are content, organization, grammar, vocab, and mechanic in which each component has a score or level. With the total of 100 in all components, the highest score for each component is 20. Furthermore, the analysis of writing test data is conducted using statistical methods. The researcher utilized IBM SPSS 25 to evaluate the pre-test and post-test scores of both the experimental and control groups.

1. Descriptive Statistical Analysis

   Determining the mean of each test (pre-test and port-test) is important before going on with t-test and hypothesis testing. To calculate the data, the researcher used IBM SPSS 25 software application.

   a. Score percentage of the test formula

$$\frac{Score}{Total\ score} \times 100$$

   b. Classification of the students' scores

Interval Score	Classification
96-100	Excellent
86-95	Very good

76-85	Good
66-75	Average
56-65	Fair
36-55	Poor
0-35	Very poor

Source: (Brookhart & McMillan, 2019)

2. Normality Test

Conducting a normality test is an essential procedure to undertake prior to executing a T-test. In the current study, the researchers utilized the Shapiro-Wilk test due to the sample size being less than 50. The following criteria are used to assess whether the data is normally distributed:

a. If sig. value > α (0.05) = normal.
b. If sig. value < α (0.05) = non-normal.

3. Homogeneity Test

The homogeneity test is a statistical procedure employed to assess whether the variance of the data obtained from the research sample is consistent across both the experimental and control groups. This assessment is performed as a prerequisite before conducting the t-test. Data can be categorized as either homogeneous or non-homogeneous.

a. If sig. value > α (0.05) = homogenous.
b. If sig. value < α (0.05) = non-homogenous

4. Hypothesis Test

The data will be analyzed using the independent samples t-test to determine whether the results of this study are statistically significant for hypotheses one and two. The researcher utilized IBM SPSS 25 as a program to test the hypotheses.

Following the formula, the significance value or alpha (α) was calculated as 5%, or 0.05. The criteria of the hypothesis then were shown as follows:

a. If Sig. (2-tailed) < α (0.05) = H_0 is refused and H_a is accepted.
b. If Sig. (2-tailed) > α (0.05) = H_0 is accepted and H_a is refused.

5. Interview Data

From the interviews, the data systems are taken to be arranged. As a result, the findings can be comprehensible for the researcher and others. Drawing conclusions represents the last step of data collection, which must be preceded by data reduction and presentation of prior findings. Subsequently, the conclusion can be reinforced by valid and dependable

evidence that has been gathered throughout the research process. Researchers analyzed statements from participants and describe the influence of self-regulated learning using ChatGPT in improving reflective writing skills of ELT students.

CHAPTER IV
FINDINGS AND DISCUSSION

This chapter addresses with the findings and the discussion of the research. The finding, along with the discussion, and the explanation of the data, serve to response the research questions that were formulated. Within this chapter, the results of the data analysis are provided. The data were collected and then processed in relation to the identified problems, with a detailed elaboration on the findings with the existing theoretical frameworks.

A. Research Findings

The research finding in this section is to describe the significance between the use of AI Chatbot and non-AI-supported self-regulated learning in students' reflective writing skills. As well as being able to describe the student's belief in the use of AI Chatbot in supporting self-regulated learning to improve reflective writing skills.

1. Analysis of Students' Grades in the Control and Experiment Classes.

The data were classified to compare students' performance in both control and experiment class before and after the intervention. This was done to specify the impact of the intervention on their learning outcomes.

Table 4.1

The classification of control class based on the pre-test and post-test results

No	Classification	Score	Pre-test		Post-test	
			N	Percentage	N	Percentage
1	Excellent	96-100	0	0%	0	0%
2	Very good	86-95	3	15%	4	20%
3	Good	76-85	14	70%	12	60%
4	Average	66-75	3	15%	4	20%
5	Fair	56-65	0	0%	0	0%
6	Poor	36-55	0	0%	0	0%
7	Very poor	0-35	0	0%	0	0%
	Total		20	100%	20	100%

Table 4.1 shows that students in the control class were mostly classified as good in their pretest scores before the intervention. Specifically, 3 students (15%) were categorized as very good, 14 students (70%) as good, and 3 students (15%) as average. However, after getting the intervention, 4 students (20%) were categorized as very good, 12 students (60%) as good, and 4 students (20%) as average.

Table 4.2

The classification of experimental class based on the pre-test and post-test results

No	Classification	Score	Pre-test		Post-test	
			N	Percentage	N	Percentage
1	Excellent	96-100	0	0%	1	5%
2	Very good	86-95	2	10%	6	30%
3	Good	76-85	11	55%	13	65%
4	Average	66-75	7	35%	0	0%
5	Fair	56-65	0	0%	0	0%
6	Poor	36-55	0	0%	0	0%
7	Very poor	0-35	0	0%	0	0%
	Total		20	100%	20	100%

Table 4.2 shows that most students in the experimental class were categorized as good in their pre-test scores before the intervention. Specifically, 2 students (10%) were classified as very good, 11 students (55%) were classified as good, and 7 students (35%) were classified as average. However, after receiving the intervention, 1 student (5%) were classified as excellent, 6 students (30%) were classified as very good, 13 students (65%) were classified as good.

The descriptive analysis of the experimental and control classes is used to show the mean score and standard deviations.

Table 4.3

The mean scores and standard deviations

Descriptive Statistics						
	N	Minimum	Maximum	Sum	Mean	Std. Deviation
Experimental pre-test	20	68	88	1571	78.55	5.960
Experimental post-test	20	83	96	1732	86.60	3.705
Control pre-test	20	74	93	1625	81.25	5.590
Control post-test	20	70	93	1592	79.60	5.753
Valid N (listwise)	20					

Based on Table 4.3, the results show below:

1) The mean value of the post-test in the experimental class (86.60) > pre-test (78.55)

indicates a positive significant of the AI Chatbot (ChatGPT) intervention.

2) The standard deviation value of the post-test in the experimental class (3.705) < pre-test (5.960) means scores were closer to the mean score.
3) The mean value of the post-test in the control class (79.60) < pre-test (81.25) means there was no improvement in the students of control class after intervention without the AI Chatbot (ChatGPT) implementation.
4) The standard deviation value of the post-test in the control class (5.753) > pre-test (5.590) means scores were farther from the mean score.

2. Data Analysis Results

a. Normality Test

Table 4.4

Pre-test Normality Test Results

Tests of Normality

	Class	Shapiro-Wilk		
		Statistic	df	Sig.
Result of the Test	Pre-test Control	.917	20	.088
	Pre-test Experimental	.942	20	.264

From the results of the test in Table 4.4, it is known that the Sig. for the pre-test control class is 0.088 and the Sig. for the pre-test experimental class is 0.264. Because the Sig. value for both groups is > 0.05, it can be drawn to conclusion that the pre-test data for the control class and experimental class are normal.

Table 4.5

Post-test Normality Test Results

Tests of Normality				
	Class	Shapiro-Wilk		
		Statistic	df	Sig.
Result of the Test	Post-test Control	.926	20	.130
	Post-test Experimental	.949	20	.352

From the result of the test in Table 4.5, it can be drawn to conclusion to show normal distribution based on the obtained significance value (Sig.). The data resulted in a Sig. of 0.130 for the control class and 0.352 for the experimental class, which are all greater than 0.05.

b. Homogeneity Test

Table 4.6

Pre-test Homogeneity Test Result

Tests of Homogeneity					
		Lavene Statistic	df1	df2	Sig.
Result of the Test	Based on Mean	2.825	1	38	.101
	Based on Median	2.126	1	38	.153
	Based on Median and with adjusted df	2.126	1	37.511	.153
	Based on trimmed mean	3.015	1	38	.091

Based on Table 4.6, the result shows that the Sig. Based on Mean is 0.101, which is greater than 0.05. So, it can be concluded that the pre-test variance data for the control class and experimental class are homogeneous.

Table 4.7

Post-test Homogeneity Test Result

Tests of Homogeneity				
Lavene Statistic	df1	df2	Sig.
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Result of the Test	Based on Mean	.891	1	38	.351
	Based on Median	1.273	1	38	.266
	Based on Median and with adjusted df	1.273	1	34.877	.267
	Based on trimmed mean	1.207	1	38	.279

Based on Table 4.7, the result shows that the Sig. Based on Mean is 0.351, which is greater than 0.05. So, it can be concluded that the post-test variance data for the control class and experimental class are homogeneous.

c. Hypothesis Test (Independent Sample T-test)

The formulation of the mean scores for the control and experimental classes were entered and calculated.

Table 4.8

The Independent Sample Test of Pre-test and Post-test for the Control and Experimental Classes

	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Pre Cont Post Cont	79.60	5.7528	1.2864	-10.0974	-3.9026	-4.575	38	.000
Pre Expe Post Expe	86.60	3.7049	.8284	-10.1149	-3.8851	-4.574	32.448	.000

Based on the table 4.8, the output of the analysis of pair pre-test and post-test experimental class:

1) Significance value (Sig.) (2-tailed) .000 < 0.05
2) T-count value (4.574) > t-table (2.037)

Based on the results, it can be concluded that H_0 is rejected, and H_a is admitted. There was a significant effect of AI Chatbot (ChatGPT) as self-regulated learning tool in improving students' reflective writing skills.

3. Interview Data Analysis

The interview was conducted to acquire data on students' perspectives concerning the utilization of AI Chatbot (ChatGPT) as a tool to support their self-regulated learning on improving their reflective writing skills. This interview contains five questions. The researcher presents the results of the interviews that have been conducted below.

Respondent C1

"My experience with ChatGPT has been good. It gives me more perspective that makes me think deeper about my writings and reflection. It also helps me to write clearly and organize my writing. The feedback and suggestions really help, making the process fast and enjoyable for me."

It is common for students to face difficulties in arranging their thoughts and putting them into writing. But, through practicing by getting instant feedback and suggestions, they can become natural and significantly improve their writing skills. The feedback and suggestions encourage the students to think deeply is an accomplishment and indicate an urge to improve their reflective writing skills. This shows positive

response and makes the students comfortable, proficient, and critical in writing their reflection.

Respondent C1

"The feedback from ChatGPT really influenced me in the area where I can expand my thoughts. It encourages me to delve deeper into my experiences, and it was repeatedly done that it allows me to evaluate and write my reflection more coherently."

The student stated that ChatGPT is helpful in identifying the areas where they can clarify and expand their ideas. By utilizing the feedback feature, students realized the weakness in their writing and knew how to overcome the problem. So, students can express their thoughts clearly and in a coherent manner. Moreover, the feature gives guidance on how to express authentically and avoid unnecessary exaggeration. As a result, students felt capable to structure their reflections thoughtfully and with greater precision.

Respondent C1

"Using ChatGPT has made it easier for to set specific goals for my writings according to my learning needs. I can set my goals with the help of ChatGPT in the beginning by it asked me some questions regarding my skills in English writings. And then as I use ChatGPT for my writings, it helps me to focus on to the points where I lack."

The student highlights how ChatGPT serves as a supporting tool in the goal-setting process for their writing tasks. ChatGPT engages the student to set their goals aligned to their needs in English writing, focusing on their strengths and weaknesses. By the guidance of ChatGPT, the student can focus on areas needing improvement. This iterative process fosters a more personalized and effective approach to develop their writing skills.

Respondent C1

"One of the challenges I faced was making sure that ChatGPT gives me feedback aligned with my writing style. Because sometimes the suggestions are not in accordance with myexperiences. ChatGPT also sometimes misunderstands the context of my writings and it leads to wrong

suggestions. So, I just think that it's important to evaluate and edit with my own adjustment."

The student expressed one of the challenges they encountered while using ChatGPT was to ensure that the feedback given aligned with their personal writing style. They stated that sometimes the suggestions given by ChatGPT did not accurately reflect their experiences or intended tone. It makes the result not aligned with their original view. Additionally, ChatGPT sometimes misunderstood the context of their writing which resulted in incorrect suggestions. To address these issues, the student emphasized the importance of critically evaluating ChatGPT's feedback and making personalized adjustments to ensure the final output aligns with their unique style and objectives. This iterative process of reviewing and editing allows them to maintain authenticity in their writing while benefiting from the tool's capabilities.

Respondent C1

"Yes, I would. Because they give good feedback and are very helpful especially for students that need to organize ideas and writings to be more effective. But it is also important to use it as an

additional tool because it is essential to write using our own ideas and critical thinking skills."

The student affirmed their recommendation of using an AI chatbot like ChatGPT for students aiming to enhance their writing skills. They believe ChatGPT provides valuable insights that can assist students in structuring their thoughts and improving the clarity of their writing. However, the student also emphasized the importance of using ChatGPT as an additional tool because it is essential to write using our own ideas and critical thinking skills.

B. Discussion

The study's findings suggest that the utilization of AI Chatbot (ChatGPT) is effective in helping ELT students to develop their reflective writing skills. Particularly by utilizing ChatGPT with a self-regulated learning approach, students are offered a supportive environment to become more autonomous and independent in receiving feedback, reflecting on their learning, and practicing their writing skills.

In terms of reflective writing, the criteria for reflection proposed by Rodgers (2002), is a meaning-making trough the students' experiences and relate it to

other ideas. This act of reflection is done effectively by the students trough composing it into writing texts. In writing their reflection, students are asked to analyse the situation of teaching problems they faced during their fieldwork in schools. The students understanding of their teaching problems show the first stage of reflection that is in accordance to Scanlan & Chernomas (1997), where the students aware of absence of experience that requires understanding. Then students proceed to the second stage, which is critical analysis. In this stage, students are asked to identify the strengths and weaknesses of the problems they faced and unfold them into their reflective writing. With the provided ideas, students then form a new understanding which showed by the solutions they adopted to overcome the problems. Moreover, some of the students complement their writing with evidences, examples and references that is related to their point.

Students that are engaged with the iterative process of reflective writing in this research are given the opportunity to articulate their ideas, thereby enhancing their ability to communicate complex thoughts effectively. This practice cultivates self-awareness by encouraging students to introspectively examine their learning experiences, thoughts, and emotions. Reflective writing also promotes comprehensive analysis, as it requires

students to critically evaluate and connect theoretical knowledge with practical experiences, fostering deeper understanding and higher-order thinking skills. According to Williams et al. (2020) and Cogni (2019), reflective writing not only strengthens content knowledge but also advances self-assessment capabilities and disciplinary thinking, enabling students to present well-rounded, thoughtful reflections that integrate personal insights with academic concepts

In this study, students are also encouraged to utilize linguistic structures outlined in the criteria of the writing test in order to enhance their articulation of ideas as it is emphasized by Avarzamani & Farahian (2019). This emphasizes the importance of integrating targeted language features to elevate the quality of student writing. By consciously applying these linguistic elements, students are better equipped to produce reflective texts that clearly demonstrate the expected linguistic, generic, and rhetorical characteristics, as highlighted by Heron and Corradini (2023). This deliberate focus on language use not only enhances clarity and coherence but also ensures that students' reflective writing meets academic standards and genre-specific conventions.

Furthermore, the practice of reflective writing serves a critical role in the professional development of

students pursuing English Language Teaching (ELT). As future educators, these students build a robust foundation of essential knowledge and skills through reflective practices, which are crucial for their future teaching contexts. Liang et al. (2016) underscore that reflective writing fosters critical thinking, self-assessment, and pedagogical awareness, all of which contribute significantly to the preparedness and adaptability of ELT students in real-world educational environments. By engaging in reflective writing, students are not only refining their language proficiency but also cultivating a deeper understanding of teaching methodologies, learner needs, and classroom dynamics, thereby bridging theory and practice in meaningful ways.

The practice of self-regulated learning (SRL) is also implemented in this study, enhanced by the integration of an AI chatbot, specifically ChatGPT, to support students in setting their learning goals and sustaining the cognitive, behavioral, and affective processes involved in SRL. This approach aligns closely with the foundational model of self-regulated learning proposed by Schunk and Zimmerman (1994), which emphasizes the cyclical nature of SRL through three phases: forethought, performance, and self-reflection. In the forethought phase, learners assess tasks, establish

specific goals, and plan strategies; ChatGPT facilitates this by helping students articulate their objectives clearly and structure their learning plans effectively. During the performance phase, students engage actively with learning activities, monitor their progress, and adjust strategies as needed—ChatGPT supports this by providing personalized feedback, answering questions, and recommending resources, thereby promoting sustained engagement and adaptive learning behaviors. Finally, in the self-reflection phase, learners evaluate their performance and outcomes, with ChatGPT offering tailored guidance to help students critically assess their learning and plan future improvement

The use of ChatGPT as a metacognitive tool enhances students' ability to independently control, monitor, and manage their learning processes, which are core components of SRL. It provides interactive and personalized learning experiences that encourage students to take ownership of their learning journey, fostering intrinsic motivation and self-efficacy—key motivational beliefs identified by Schunk and Zimmerman as essential for effective self-regulation. Moreover, ChatGPT's capacity to deliver real-time feedback and scaffold learning tasks helps students develop critical thinking and problem-solving skills, which are vital for sustaining

cognitive and affective engagement throughout the learning process.

The study resulted in a notable difference in improving students' reflective writing skills between the experimental group that incorporated ChatGPT and the control group that did not integrate such approach. While it is aligned with prior researches that accentuate the AI technology potential in developing educational experiences, it is also contrasts to the finding of study conducted by Zebua & Katemba (2024). The researchers of the previous study argue that while ChatGPT provides benefits such as personalized feedback and motivation, it may also hinder the development of important writing abilities like critical thinking, creativity, and originality. This suggests that reliance on ChatGPT might not always lead to improved reflective writing skills if these higher-order cognitive skills are compromised.

This study also contrasts to research conducted by Dong (2024) which emphasizes the feedback engagement ChatGPT offers that is instant and accessible, differs the nature of student engagement with AI feedback from traditional instructor feedback. It raises concerns about whether students fully internalize and critically engage with AI-generated feedback, which is crucial for genuine improvement in reflective writing. A broader cautionary

perspective is suggested by Essel et al. (2024), which investigates ChatGPT's effects on cognitive skills. While not directly contradicting improvements in writing, it implies that the impact on critical, creative, and reflective thinking is complex and warrants further scrutiny, potentially moderating claims of straightforward skill enhancement.

Furthermore, these are the prior studies that aligned with the result of this research, which accentuate the AI technology potential in developing educational experiences. The data indicates the use of AI Chatbot through personalised feedback and suggestion supports students' critical thinking and improves their writing abilities. It is in accordance with previous findings (C. Liu et al., 2023), which emphasized the use of reflective thinking promotion mechanism-based AI-supported English writing approaches that expand students' thinking and significantly advance the students' English writing performance. ELT students in this study also discussed the improvement of learning experience using AI, which aligned with (Ouyang et al., 2022) that resulted the functions of AI applications in online higher education include improvement of learning experience.

The offered personalized feedback and suggestions from AI Chatbot have established the capacity

to assist self-regulated learning, and this is aligned with the results reached by Chang et al. (2023). The research concerns students unethically potential exploiting generative AI technology such as ChatGPT. To effectively navigate this shift, the proposed study embraces AI as a current educational trend and establishes pedagogical principles for appropriately employing technologies such as ChatGPT to encourage self-regulation.

The findings indicate that employing AI chatbots as a pedagogical tool significantly enhances EFL students' capacity for self-regulating their writing processes. This conclusion aligns with prior studies, which have demonstrated that technological tools can foster self-regulation practices in educational contexts (Boykin et al., 2019). AI-driven environments provide learners with structured opportunities to establish writing objectives, systematically organize their thoughts, and monitor their progress effectively (Su et al., 2018).

The empirical evidence corroborates the findings of numerous research that have explored the application of AI chatbots for diverse language learning objectives (e.g., Belda-Medina & Calvo-Ferrer, 2022; Ebadi & Amini, 2024; Hsu et al., 2023; Kim et al., 2021; Liu et al., 2023; Mohamed, 2024). The majority of these researches have demonstrated the efficacy of AI chatbots in enhancing the

language proficiency and communicative competence of EFL learners. This is particularly evident when these AI-driven conversational agents are utilized as interactive partners, allowing learners to occupied in self-directed, on-demand practice to refine their fundamental language skills (i.e., listening, speaking, reading, and writing) as well as expand their lexical and grammatical knowledge.

Nevertheless, the apprehensions expressed by students regarding excessive dependence on AI chatbots introduce a novel aspect that has received limited attention in prior research. This domain warrants further investigation in future studies, as the potential risks associated with reduced creativity, critical thinking, and the likelihood of plagiarism are legitimate concerns. This research contributes to the theoretical framework surrounding the role of AI technologies, particularly AI chatbots as supportive writing tools, in enhancing the writing competencies of ELT/EFL students.

Various limitations must be acknowledged in this research. Firstly, the research was conducted with a small sample of ELT/EFL undergraduates from a singular institution, which constrains the generalizability of the findings. Moreover, the study predominantly utilized self-reported data, that perhaps be susceptible to bias. Additionally, the investigation did not extensively

examine the long-term effects of employing AI chatbots as supportive tools in self-regulated learning aimed at enhancing reflective writing skills, particularly concerning the apprehensions related to excessive reliance on AI technologies. Further investigation into the possible disadvantages of AI in writing, particularly the implications for creativity and critical thinking, is necessary. Study focused on effective strategies to alleviate these matters could prove advantageous for teachers and lecturers.

In conclusion, this study provides the expanding corpus of literature regarding the influence of AI in the realm of education by establishing that the utilization of AI chatbots as supportive instruments in self-regulated learning can enhance the reflective writing skills of ELT students. The findings are consistent with established theoretical frameworks of collaborative and technology-enhanced learning, while also emphasizing the necessity to discuss potential disadvantages, such as excessive dependence on AI technologies. This study highlights the significance of a well-adjusted incorporation of AI technologies that supports rather than supplants critical and creative thinking within the process of writing.

CHAPTER V
CONCLUSION AND SUGGESTIONS

A. Conclusion

This study has demonstrated the constructive effect of the use of AI Chatbot (ChatGPT) in supporting self-regulated learning to improve ELT students' reflective writing skills. By employing quasi-experimental research, the research has provided vigorous evidence that AI Chatbot (ChatGPT) is able to significantly improve students' reflective writing ability. This finding aligns with prevailing literature on the assistances of AI tools in the realm of education, emphasizing the idea that technology is able assist students in improving language skills.

The study objective—to find out the significant differences between the use of AI Chatbot and non-AI-supported self-regulated learning in students' reflective writing skills—have been successfully discussed. Quantitative data revealed marked improvements in reflective writing performance, with users of ChatGPT exhibiting significantly greater advancements compared to those in the control group.

In practical terms, these findings indicate that AI technologies such as ChatGPT can be effectively incorporated into English language learning to improve

student performance. Educators may contemplate the adoption of AI technology to facilitate collaborative learning, provide instant feedback, and assist students in organizing their writing processes. Nevertheless, it is imperative to exercise caution to avoid excessive dependence on AI instruments, as students in this research voiced worries regarding potential declines in creativity and critical thinking skills, as well as the chance of plagiarism.

The limitations of this research encompass the small size of sample and its concentration on a single institution, which constrain the generalizability of the findings. Furthermore, the short-term design of the research did not facilitate an examination of the long-term impacts associated with the use of AI chatbots. Forthcoming research are suggested to discuss these deficiencies by conducting investigations with broader and more varied populations, as well as exploring the long-term effects on the development of writing using AI. Additionally, more inquiry is necessary to lessen potential disadvantages, such as excessive reliance on AI technologies and the implications for creativity.

In conclusion, this study offers significant insights about the use of AI in the realm of language education, emphasizing the potential benefits and inherent

limitations. A well-adjusted integration of AI instruments, coupled with approaches that foster critical thinking and creativity, is crucial to ensuring that technology functions as a supportive mechanism rather than a substitute for fundamental human cognitive skills.

B. Suggestions

Drawing from the findings of the study, the researcher offers several pertinent recommendations intended to benefit educators, students, and other researchers engaged in this particular field. The following suggestions are proposed:

1. For Students

   To improve students' reflective writing skills, it is recommended that they utilize AI chatbots both within and outside the classroom, not as a means of exploitation but as a supportive learning tool.

2. For Educators

   Educators in English Language Teaching play a crucial role as facilitators in the acquisition of English language skills by students. To enhance the learning process, it is advisable for educators to incorporate AI chatbots as tools that support self-regulated learning aimed at improving reflective writing skills. It is recommended that educators utilize AI chatbots to

provide feedback and suggestions, features that can be leveraged to enhance students' writing competencies.

3. For Further Researches

   To provide valuable insights and enhance the quality of future research, it is recommended that researchers employ larger sample sizes and examine the long-term effect of AI chatbots as supportive tools.

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APPENDICES

Appendix 1 Writing Test Guidelines

Instructions:

1. Write your responses in clear and organized paragraphs.
2. Pay attention to the criteria of content, organization, grammar, vocabulary, and mechanic.
3. Allocate sufficient time for each task.

Criteria:

1. Content: the significance of the writer's topic, the depth of the writer's knowledge and analysis of the topic.
2. Organization: consist of description, interpretation or analysis, and the outcome or evaluation, which the writer needs to ensure the clarity and coherence.
3. Grammar: encompasses the rules and conventions that govern language usage, ensuring the writings to be comprehensible.
4. Vocabulary: encompasses the use of words that accurately represent ideas within the text.
5. Mechanic: conventions of print including spelling, punctuation, and capitalization.

Scoring:

- The tasks will be scored based on the provided rubric covering content, organization, grammar, vocabulary, and mechanic – each one = 20 scores (20 X 5 = 100 marks for each task).
- Scores will be averaged to determine participants' levels of reflective writing skills.

Pre and Post Test in Reflective Writing

1. Write a reflective essay about a teaching problem you faced or observed during your fieldwork in a school. Analyse the situation, identify strengths and weaknesses, and propose potential solutions. Support your arguments with evidence, examples, and references.

Scoring:

1. (20) The topic is relevant and impactful, the writer demonstrates exceptional understanding and in-depth analysis supported by extensive examples.
   (16) The topic is relevant and interesting, the writer shows strong knowledge of the subject, with solid analysis and a good range of supporting evidence.
   (12) The topic is somewhat relevant but may lack broader significance or urgency, the writer displays a basic understanding of the topic, with some analysis but limited depth or supporting evidence.
   (8) The topic is of limited relevance or interest, the writer shows minimal understanding, with superficial analysis and weak or poorly supported arguments.
   (4) The topic lacks relevance and fails to inform the audience meaningfully.
2. (20) The structure is well-organized, easy to follow, each with a clear main idea that directly supports the thesis.
   (16) Mostly clear and coherent, though there may be minor lapses in organization that could confuse readers.
   (12) Somewhat organized, but may include irrelevant information or lack clear focus on supporting the thesis.
   (8) Poorly organized with little relevance to the thesis. Lacks clarity; the overall structure is confusing, making it challenging for readers to follow the argument.
   (4) Disorganized with little to no connection to the thesis, extremely unclear and incoherent.
3. (20) Virtually no grammatical errors, demonstrates a strong command of language conventions.
   (16) Few minor grammatical errors that do not impede understanding or clarity.
   (12) Noticeable grammatical errors that may cause some confusion but do not significantly hinder overall comprehension.
   (8) Frequent grammatical errors that lead to confusion or misinterpretation of the text.
   (4) Severe grammatical errors throughout the text that significantly impair understanding.

4. (20) Words are chosen carefully and uses a rich and varied vocabulary to express ideas clearly
   (16) Most word choices are clear and precise, though a few may be slightly vague or less effective.
   (12) Some word choices may be unclear or imprecise, leading to occasional confusion about meaning.
   (8) Many word choices are vague or imprecise, leading to misunderstandings or ambiguity in the text.
   (4) Extremely limited or inappropriate vocabulary and lacks any meaningful understanding of context.
5. (20) No spelling errors, correct use of punctuation and capitalization rules.
   (16) Few minor spelling errors, generally correct punctuation with occasional minor errors, mostly correct capitalization, with rare instances of mistakes.
   (12) Noticeable spelling errors, some punctuation errors, inconsistent application of capitalization rules, with several errors.
   (8) Frequent spelling errors, numerous punctuation mistakes, many capitalization errors.
   (4) Severe spelling and punctuation errors, consistent and pervasive punctuation errors, major issues with capitalization rules.

Appendix 2 Interview Guidelines

1. How would you describe your overall experience using ChatGPT for your reflective writing?
2. How has the feedback from ChatGPT influenced your approach to reflective writing?
3. How did using ChatGPT affect your ability to set goals for your writing tasks?
4. What challenges did you face while using ChatGPT for your reflective writing?
5. Would you recommend the use of AI chatbots like ChatGPT to other students for improving their writing skills? Why or why not?

Appendix 3 Scoring Rubric of Writing Test

Writing Compo-nents	Score	Level	Indicators	Weight-ing
Content	20	Excellent	The topic is relevant and impactful, the writer demonstrates exceptional understanding and in-depth analysis supported by extensive examples.	20
	16	Good	The topic is relevant and interesting, the writer shows strong knowledge of the subject, with solid analysis and a good range of supporting evidence.	
	12	Average	The topic is somewhat relevant but may lack broader significance or urgency, the writer displays a basic understanding of the topic, with some analysis but limited depth or supporting evidence.	
	8	Fair	The topic is of limited relevance or interest, the writer shows minimal understanding, with superficial analysis and weak or poorly supported arguments.	
	4	Poor	The topic lacks relevance and fails to inform the audience meaningfully.	
Organiza-tion	20	Excellent	The structure is well-organized, easy to follow, each with a clear main idea	20

			that directly supports the thesis.	
	16	Good	Mostly clear and coherent, though there may be minor lapses in organization that could confuse readers.	
	12	Average	Somewhat organized, but may include irrelevant information or lack clear focus on supporting the thesis.	
	8	Fair	Poorly organized with little relevance to the thesis. Lacks clarity; the overall structure is confusing, making it challenging for readers to follow the argument.	
	4	Poor	Disorganized with little to no connection to the thesis, extremely unclear and incoherent.	
Grammar	20	Excellent	Virtually no grammatical errors, demonstrates a strong command of language conventions.	20
	16	Good	Few minor grammatical errors that do not impede understanding or clarity.	
	12	Average	Noticeable grammatical errors that may cause some confusion but do not significantly hinder overall comprehension.	
	8	Fair	Frequent grammatical errors that lead to confusion or misinterpretation of the text.	

	4	Poor	Severe grammatical errors throughout the text that significantly impair understanding.	
Vocabula-ry	20	Excellent	Words are chosen carefully and uses a rich and varied vocabulary to express ideas clearly	
	16	Good	Most word choices are clear and precise, though a few may be slightly vague or less effective.	
	12	Average	Some word choices may be unclear or imprecise, leading to occasional confusion about meaning.	20
	8	Fair	Many word choices are vague or imprecise, leading to misunderstandings or ambiguity in the text.	
	4	Poor	Extremely limited or inappropriate vocabulary and lacks any meaningful understanding of context.	
Mechanic	20	Excellent	No spelling errors, correct use of punctuation and capitalization rules.	
	16	Good	Few minor spelling errors, generally correct punctuation with occasional minor errors, mostly correct capitalization, with rare instances of mistakes.	20
	12	Average	Noticeable spelling errors, some punctuation errors, inconsistent application of capitalization rules, with several errors.	

8	Fair	Frequent spelling errors, numerous punctuation mistakes, many capitalization errors.
4	Poor	Severe spelling and punctuation errors, consistent and pervasive punctuation errors, major issues with capitalization rules.

Appendix 4 Interview Transcript

Question 1: How would you describe your overall experience using ChatGPT for your reflective writing?	
Respondent C1:	*"My experience with ChatGPT has been good. It gives me more perspective that makes me think deeper about my writings and reflection. It also helps me to write clearly and organize my writing. The feedback and suggestions really help, making the process fast and enjoyable for me."*
Question 2: How has the feedback from ChatGPT influenced your approach to reflective writing?	
Respondent C1:	*"The feedback from ChatGPT really influenced me in the area where I can expand my thoughts. It encourages me to delve deeper into my experiences, and it was repeatedly done that it allows me to evaluate and write my reflection more coherently."*
Question 3: How did using ChatGPT affect your ability to set goals for your writing tasks?	
Respondent C1:	*"Using ChatGPT has made it easier for to set specific goals for my writings according to my learning needs. I can set my goals with the help of ChatGPT in the beginning by it asked me some questions regarding my skills in English writings. And then as I use ChatGPT for my writings, it helps me to focus on to the points where I lack."*
Question 4: What challenges did you face while using ChatGPT for your reflective writing?	
Respondent C1:	*"One of the challenges I faced was making sure that ChatGPT gives me feedback aligned with my writing style.*

	Because sometimes the suggestions are not in accordance with my experiences. ChatGPT also sometimes misunderstands the context of my writings and it leads to wrong suggestions. So, I just think that it's important to evaluate and edit with my own adjustment."
Question 5: Would you recommend the use of AI chatbots like ChatGPT to other students for improving their writing skills? Why or why not?	
Respondent C1:	*"Yes, I would. Because they give good feedback and are very helpful especially for students that need to organize ideas and writings to be more effective. But it is also important to use it as an additional tool because it is essential to write using our own ideas and critical thinking skills."*

Appendix 5 Score of Tests

Control Class Score

No	Student Code	Pre-test	Post-Test
1	D-1	86.00	86.00
2	D-2	75.00	70.00
3	D-3	77.00	77.00
4	D-4	80.00	82.00
5	D-5	90.00	86.00
6	D-6	80.00	80.00
7	D-7	80.00	82.00
8	D-8	84.00	80.00
9	D-9	75.00	70.00
10	D-10	76.00	80.00
11	D-11	80.00	80.00
12	D-12	78.00	75.00
13	D-13	78.00	78.00
14	D-14	82.00	80.00
15	D-15	80.00	80.00
16	D-16	93.00	93.00
17	D-17	82.00	86.00
18	D-18	74.00	70.00
19	D-19	84.00	80.00
20	D-20	78.00	77.00
Total score		1,612	1,592
Mean		80.600	79.600

Experimental Class Score

No	Student Code	Pre-test	Post-test
1	C-1	86.00	88.00
2	C-2	70.00	84.00
3	C-3	80.00	85.00
4	C-4	82.00	91.00

5	C-5	88.00	96.00
6	C-6	80.00	83.00
7	C-7	74.00	86.00
8	C-8	76.00	86.00
9	C-9	78.00	80.00
10	C-10	85.00	87.00
11	C-11	81.00	90.00
12	C-12	85.00	85.00
13	C-13	68.00	81.00
14	C-14	75.00	84.00
15	C-15	84.00	89.00
16	C-16	68.00	85.00
17	C-17	82.00	88.00
18	C-18	70.00	83.00
19	C-19	72.00	85.00
20	C-20	80.00	82.00
Total score		1,479	1,718
Mean		73.95	85.900

Appendix 6 Lesson Plan

LESSON PLAN			
Number of Document:	Number of Revision: 02	Pages: 4	Date of issue: 06 February 2025
Class: **Improving Reflective Writing Skill through Self-regulated Learning Using ChatGPT**	Semester: **8**		Number of meetings: **2**
Learning Goals	1. Students are able to distinguish the features, functions, and benefits of AI chatbot. 2. Students are able to operate AI chatbot for self-regulated learning. 3. Students are able to execute a real time conversation, which features explaining, correcting, repeating based on chatbot's feedback 4. Students are able to review on the feedback from AI chatbot to revise and improve their reflective writing.		
General Info	This course is designed to make ELT students improve their skill of reflective writing in the teaching and learning a language. Therefore, the course will cover basic function of AI chatbot where the students will utilize it as a tool for self-regulated learning, practising their language skills through real time conversations, and eventually foster students' reflective writing skills by writing and getting feedback with the AI chatbot. By mastering such knowledge mentioned earlier, the students are expected to be able to integrating AI chatbot as a tool for their teaching and learning activities appropriately and to improve their reflective writing skills independently. Finally, this course is expected to help students accomplish the process of learning through gaining opportunity to do a self-regulated learning using AI chatbot, in which it is vital to improve their language skill.		
Learning Materials	1. How to use AI chatbot effectively for students. 2. Practise students' language skills through real time conversations 3. Fostering students' writing skills through writing their experiences with AI chatbot.		
Learning Media	1. Google Meet 2. Worksheet: https://drive.google.com/drive/folders/1858QZpD55nB1aKqvg0k1yZDp6_ETae_e?usp=sharing 3. Pre-test: https://forms.gle/urQFZc9JMpQq87JW6 4. Post-test: https://forms.gle/kfZmxX77i5TV7hcYA		
Learning Method	Lecture, discussion, presentation, demonstration		

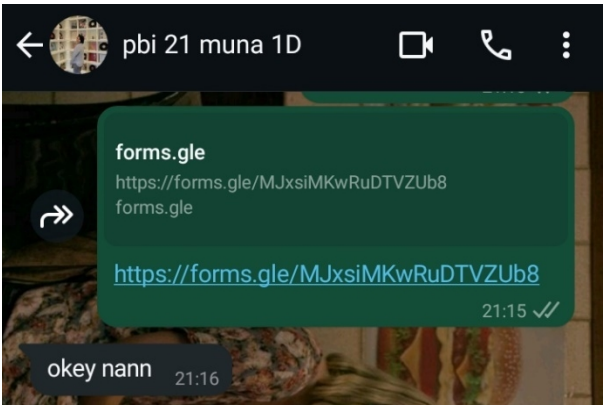
Number of Meetings	Goal of Each Meeting	Indicator	Learning Activities	Time Allocation
1	Students understand the features, functions, benefits of AI chatbot and are able to use AI chatbot for self-regulated learning.	1. Understand the expectations of the lesson. 2. Practice the use of the features in AI chatbot. 3. Demonstrate self-regulated learning using AI chatbot through creating specific goals for their own learning. 4. Interact with the AI chatbot and practice their language skills	1. Introducing ChatGPT to the students and explaining their features, functions, and benefits. For example, showing how the chatbot can provide instant feedback, corrections, and suggestions. 2. Providing demonstrations and practice sessions for the student to familiarize themselves with the chatbot and its interface. For example, letting the students interact with the chatbot and ask questions or request help. 3. Establishing clear expectations and guidelines for the students on how to use the chatbot for self-regulated learning. For example, setting specific goals, and criteria for the chatbot interaction. 4. Assigning different topics, scenarios, or tasks for the students to interact with the chatbot and practice their language skills. For example, asking the students to	90 minutes (Google Meet)

			introduce themselves, describe a picture, or give a presentation to the chatbot. (Worksheet 1 & 2)	
2	Students are able to practice real time conversations, which features explaining, correcting, repeating based on chatbot's feedback and use the feedback from AI chatbot to revise and improve their reflective writing.	1. Utilize the direct input and feedback features of chatbot. 2. Reflect on their interaction with the chatbot and their learning outcomes. 3. Use the feedback from AI chatbot and peers to revise their writings.	1. Encouraging the student to use the direct input and feedback features of the chatbot to improve their language accuracy and fluency. For example, asking the students to repeat, correct, or explain their responses based on the chatbot's feedback. 2. Monitoring and supporting the students' interaction with the chatbot and providing additional guidance, feedback, or resources as needed. For example, observing the students' performance and intervening when necessary. 3. Providing prompts and questions for the student to reflect on their interaction with the chatbot and their learning outcomes. For example, asking the student to write about what they learned, how they felt, what they liked or disliked, what they found easy or difficult,	15 minutes (Google Meets) 3 days (Students self-regulated learning period)

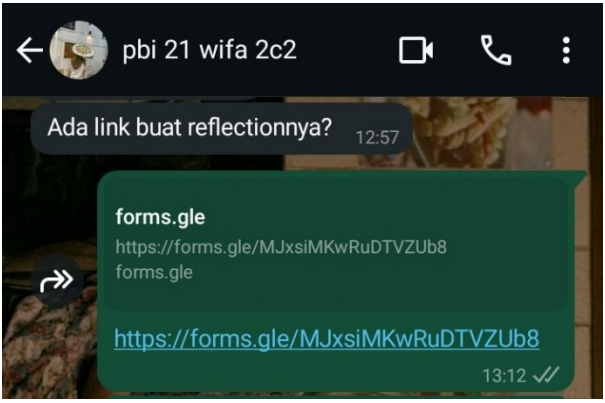
			or what they would do differently next time. (Worksheet 3 & 4) 4. Facilitating peer review activities for the student to exchange their reflective writings and provide constructive feedback to each other. For example, asking the student to read and comment on their worksheet in gdocs. 5. Encouraging the student to use the feedback from their peers and the chatbot to revise and improve their reflective writings. For example, asking the students to edit, rewrite, or expand their writings based on the feedback. 6. Incorporating the feedback from the peers and the chatbot into the students' learning pathways and future interactions. For example, using the feedback to adjust the students' goals, strategies, or tasks. 7. Conducting post-test activities for the students to assess their language proficiency and self-regulated learning skills after the interaction with the chatbot.	

Appendix 7 Documentation

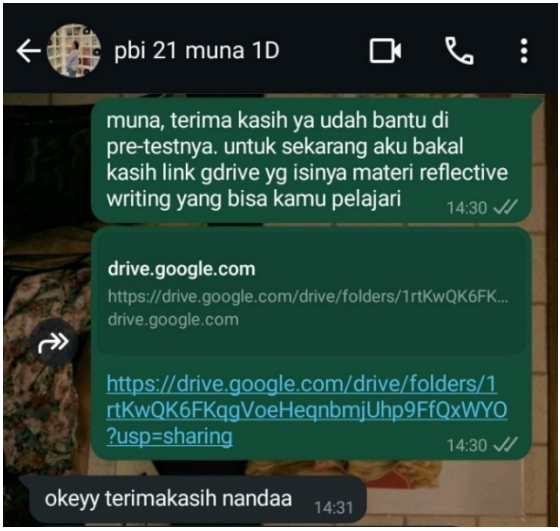
Picture 1.
The Researcher Shares Pre-Test to the Student in Control Class.



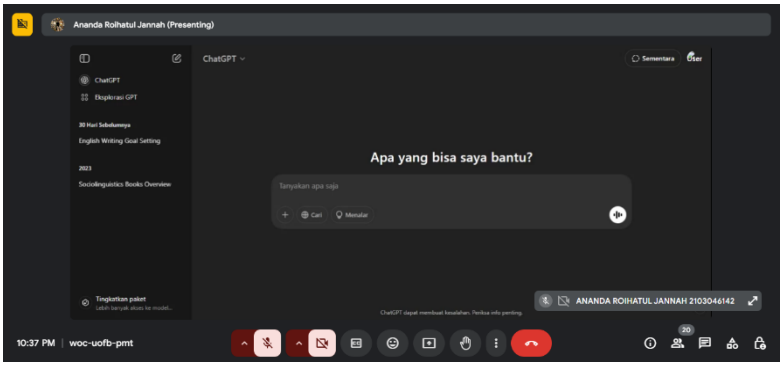
Picture 2.
The researcher shares pre-test to the student in experimental class.



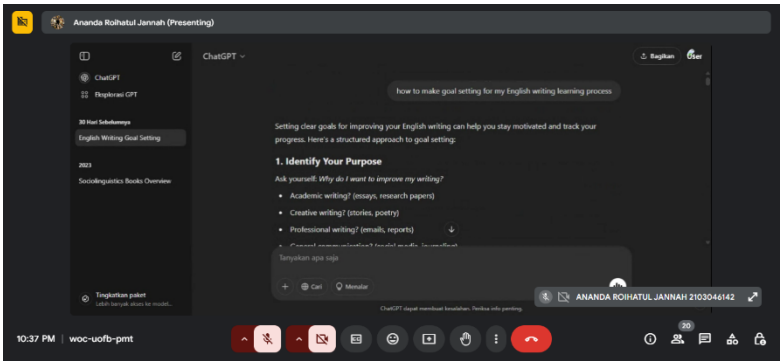
Picture 3.
The Researcher Gives Learning Materials to the Control Class.



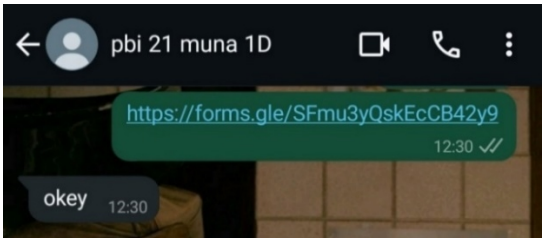
Picture 4.
The Researcher Gives Intervention to the Experimental Class.



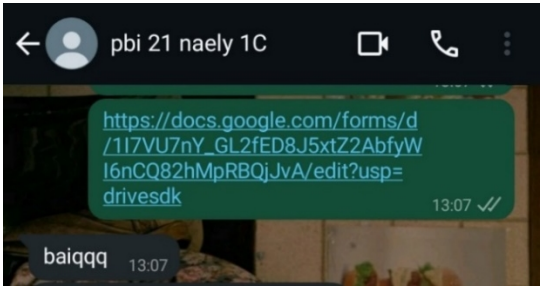
Picture 5.
The Researcher Gives Intervention to the Experimental Class.



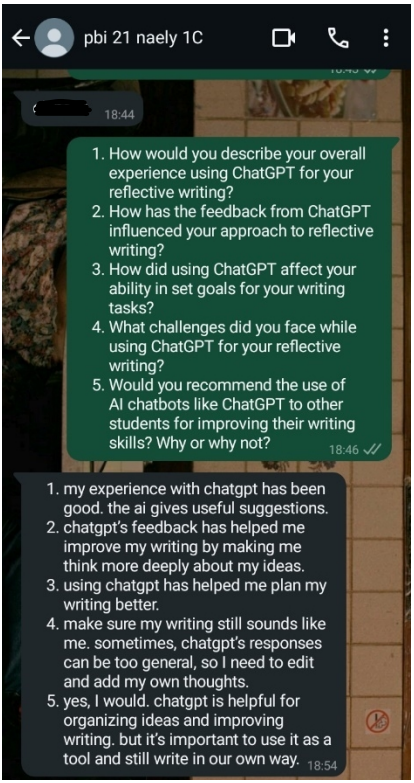
Picture 6.
The Researcher Shares Post-Test to the Student in Control Class.



Picture 7.
The researcher shares post-test to the students in experimental class.



Picture 8.
The Researcher Interviews the Student in Experimental Class.



CURRICULUM VITAE

Name	: Ananda Roihatul Jannah
Place and Date of Birth	: Lamongan, June 10, 2003
Student Number	: 2103046142
Major	: English Education
Address	: Desa Sungelebak, Kec. Karanggeng, Kab. Lamongan, Jawa Timur
E-mail	: nandaroiha@gmail.com
Education Background	: 1. TK Muslimat NU 2. MI Tarbiyatul Banat 3. MTs Putra Putri Simo 4. MA Matholi'ul Anwar

Semarang, 27 March 2025

The researcher,

Ananda Roihatul Jannah
2103046142