CHAPTER I
INTRODUCTION

This chapter provides an overview of the study by outlining its background, purpose, and central focus. It explains the context in which the research was conducted and highlights the issues that prompted the need for investigation. This chapter presents the objectives of the study and introduces the research questions that guide the overall inquiry.

A.   Background

The rapid advancement of technology in today's era has created numerous groundbreaking innovations that significantly benefit society. One of the most prominent and widely discussed innovations is Artificial Intelligence (AI). AI is a set of technologies that allow computers to perform tasks that typically require human intelligence. It has become an integral part of modern life, influencing various domains such as healthcare, business, and education (Russell & Norvig, 2021).

Artificial Intelligence (AI) is a branch of computer science that focuses on creating machines capable of performing tasks that typically require human intelligence. These tasks include learning from experience, reasoning, problem-solving, understanding natural language, perception, and even creativity. AI encompasses various subfields, including machine learning, which enables systems to learn from data, and natural language processing, which allows machines to comprehend and generate human language. The goal of AI is to create systems that can perform tasks that typically require human intelligence, such as visual perception, speech recognition, decision-making, and language translation.

AI has gone through many changes over time. It began with Alan Turing's 1950 paper, in which he suggested that machines could think like humans. AI officially began as a field in 1956 at the Dartmouth Conference, where researchers aimed to build machines that could learn and reason (Russell & Norvig, 2021). However, in the 1970s, progress slowed due to unmet expectations and limited computing power. This period is called the "AI Winter," when interest and funding dropped. Later, AI came back with advances in neural networks (Rumelhart et al.,

1986) and the backpropagation algorithm (LeCun et al., 1989), which helped improve things like image and speech recognition.

Today, AI is still growing, with the goal of creating artificial general intelligence (AGI) capable of performing any task a human can. Modern technologies, such as big data, powerful computers, and deep learning, have helped AI improve. For example, the AlexNet model (Krizhevsky et al., 2012) changed the field of computer vision, and transformer models (Vaswani et al., 2017) significantly improved how AI understands language. As technology keeps advancing, AI will continue to develop and become even more powerful.

AI's potential has solidified its place as a transformative force in various sectors, including the education sector. Many adaptive learning platforms, such as Duolingo use AI algorithms to personalize the learning experience for each user by adjusting the difficulty and content of lessons based on individual students' performance and progress to ensure more effective comprehension (Luckin et al., 2016). AI also has many advantages for students in universities. Besides providing students with instant support, which makes education more accessible and inclusive (Holmes et al., 2019). It also helps students with their research by analyzing large datasets, identifying patterns, and generating insights at unprecedented speeds, which accelerates student study (Jordan & Mitchell, 2015).

Despite the benefits of AI, students face several challenges in using AI. The first challenge students face is the growing concern about academic dishonesty, driven by students' misuse of AI to generate essays or complete assignments, which can undermine their learning and skill development (Ateeq et al., 2024). AI also faces a second major challenge with the content it generates. Many AI models generate fabricated references, making them unsuitable for rigorous academic work (Zhou et al., 2022). The third challenge is bias in AI datasets, which can lead to unfair grading or misrepresentation in academic assessments, raising concerns about equity in education (Mehrabi et al., 2021).

By considering the issues arising from AI, it is necessary for students to have AI literacy. AI literacy is students' ability to understand, use, and critically evaluate AI technologies (Pinski & Benlian, 2024). Its range extends beyond coding and

programming, with it also incorporating the ability to interpret AI-based decisions and understand their impact (Zhang & Dafoe, 2020). Integrating AI literacy into education equips students to evaluate information and content generated by AI critically. It helps them identify misinformation and makes them understand the ethical implications of AI use. From this information, we can see that this critical engagement is vital as AI systems become increasingly integrated across sectors, including education, healthcare, and finance.

Fortunately, several studies have examined AI literacy from different perspectives. These studies offer useful frameworks and measurement tools that could serve as foundations for exploring AI literacy. For example, Pinski and Benlian (2023) developed a five-dimensions AI literacy scale focusing on knowledge, skills, and ethical awareness. However, their research did not explore discipline-specific student groups such as English Education. Similarly, Carolus et al. (2023) introduced the Meta AI Literacy Scale (MAILS), which measures four major components of AI literacy. Although comprehensive, this study also does not address how students in particular fields, especially those using AI for language learning.

Another study by Lérias (2024) investigated AI literacy integration in higher education and identified institutional challenges in teaching AI concepts. However, it did not assess students' individual literacy levels or their ethical understanding when using AI for learning. The study by Harsyah (2024) is the closest to the present research as it explored students' literacy and attitudes toward AI in academic writing. However, it lacked a structured AI literacy framework and was not specific to English Education students.

Overall, previous studies offer useful foundations for understanding and measuring AI literacy, yet several gaps still remain. Recognizing these limitations, the present study titled "The Profile of English Education Students' AI Literacy" aims to address them by assessing the current level of AI literacy among English Education students and identifying the challenges they encounter in understanding and ethically utilizing AI tools. By doing so, this study provides a clearer picture of how well-prepared English Education students are in navigating AI-based learning

environments. Furthermore, the findings are expected to contribute valuable insights for improving curriculum design and supporting more responsible AI use in educational contexts.

B.   Research Questions

This study aims to explore two fundamental questions. The study hopes that by answering these questions. It can provide valuable insights into students' AI literacy levels and the issues they encounter when using AI.

1. What is the current level of English education students' AI literacy in the ELT classroom?

2. What challenges do EED students face in understanding and using AI tools ethically and responsibly?

C.   Research Purposes

1. To assess the current level of AI literacy among English education students in ELT classrooms.

2. To identify the challenges that they encounter in understanding and ethically utilizing AI tools.

D.   Research Significances

1.   Theoretical Significance

By assessing AI literacy among students in the ELT classroom, this study will offer insights that can inform future theoretical frameworks for integrating AI literacy into language education curricula, which will help ensure that students are equipped with the necessary skills to use AI responsibly and effectively.

2.   Practical Significance

In the practical field, this study provides valuable information for educators, curriculum designers, and policymakers regarding the current state of AI literacy among university students, particularly students in English education programs. Furthermore, the findings can also help universities to design targeted interventions,

workshops, or course content to enhance students' readiness to engage with AI tools in educational and professional contexts.

E.   Conceptual Framework

This research will be conducted based on theories and concepts that explore AI literacy in education, digital competence, the role of AI in language learning, and the challenges in using AI in an academic context. By examining the AI literacy profile of English education students, this study aims to provide insights into their current level of AI literacy. The conceptual framework guiding this study integrates theoretical foundations from literacy, digital literacy, information literacy, AI literacy, and the general challenges when using AI, ensuring a comprehensive analysis of the students' AI literacy levels and their implications for language education.

AI literacy refers to students' ability to understand, use, and critically evaluate AI technologies (Pinski & Benlian, 2024). There are four key aspects of AI literacy competencies that will be explored: they are the four competencies identified by Ng et al. (2021). The competencies are divided into "Know & understand AI", "Use & apply AI", "Evaluate & create AI", and "AI ethics". These categories are inspired by Bloom's taxonomy for competencies (know & understand, use & apply, evaluate & create) with the addition of AI ethics from Krathwohl (2010).

1.   Know & understand AI: This stage refers to an individual's ability to grasp fundamental AI concepts, including how AI systems function, their underlying principles, and their impact on various industries. It involves understanding key AI components such as machine learning, deep learning, natural language processing, and data-driven decision-making.

2.   Use & apply AI: This stage refers to an individual's ability to interact with AI tools, integrate AI technologies into various tasks, and leverage AI for practical applications. It includes skills such as operating AI-powered software, automating processes, and utilizing AI for decision-making in different contexts, such as education, business, and daily life.

3. Evaluate & create AI: This stage involves analyzing AI systems, assessing their effectiveness, improving existing AI models, and even developing new AI applications. It includes the ability to debug AI models, optimize machine learning algorithms, and critically assess AI-generated outputs.

4. AI ethics: This stage focuses on understanding and addressing the ethical implications of AI, including fairness, bias, accountability, transparency, and responsible AI use. It involves critically analyzing AI's societal impact and ensuring AI applications align with ethical principles.

These competencies will then be used as factors to evaluate AI literacy in a comprehensive self-assessment tool named the Meta AI Literacy Scale (MAILS). It was created by Carolus et al. (2023) with some additional factors and modifications to the competencies
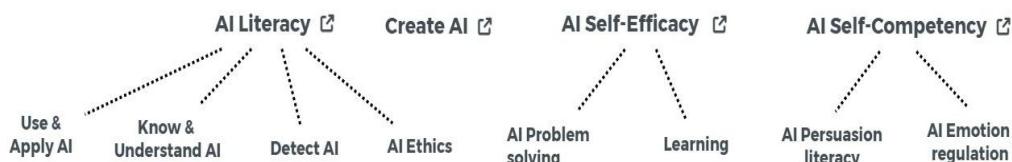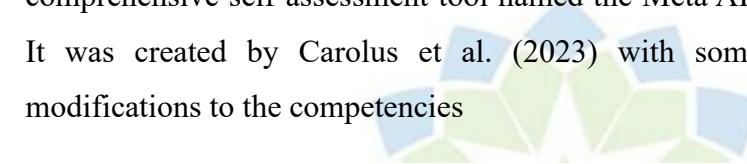
Picture 1.1 The structural model of the modified confirmatory factor analysis

F. Previous Studies

As artificial intelligence (AI) continues to transform various fields, including education, understanding AI literacy has become increasingly important. Several studies have attempted to define and measure AI literacy, providing valuable insights into its dimensions, applications, and ethical considerations. However, existing research has primarily focused on general AI literacy frameworks without addressing specific student populations, particularly in the field of English Education. So, this section will review key studies that have contributed to the understanding of AI literacy, highlighting their strengths and

limitations. While these studies provide important foundations, they also reveal a research gap regarding AI literacy within English Education students.

The first study by Pinski and Benlian (2023) develops a measurement scale for AI literacy comprising five dimensions and 13 items, emphasizing knowledge, skills, and ethical awareness. However, this study did not explore AI literacy within specific student populations, particularly in the field of English Education. As AI tools become increasingly integrated into language learning, understanding how English Education students engage with these technologies remains an unexplored area that requires further investigation.

The second study is about the Meta AI Literacy Scale (MAILS) developed by Carolus et al. (2023). It offers a validated framework for measuring AI literacy, covering four key aspects: Use & Apply AI, Understand AI, Detect AI, and AI Ethics. While this scale provides a strong foundation for assessing AI competency, it does not examine how students across disciplines, such as English Education, perceive and use AI tools in their academic environments. This highlights a research gap in understanding AI literacy from a discipline-specific perspective, particularly in language education, where AI-powered tools, such as machine translation and automated writing assistance, are increasingly used in student learning.

The third study was done by Lérias (2024). It investigated the integration of AI literacy in higher education through a case study, identifying institutional challenges in teaching AI-related concepts. Although the research emphasized the need for curriculum development and highlighted gaps in AI education, it did not focus on students' AI literacy levels or their ethical concerns regarding AI use in learning. Moreover, it lacked a student-centred perspective on how AI literacy influences educational practices in English language learning. Addressing this gap requires research that examines how English Education students engage with AI tools, their understanding of AI ethics, and the impact of AI on their academic development.

The third study was done by Harsyah (2024) at Jambi University. The thesis explores how familiar and skilled students are with AI, how these two aspects (literacy and attitude) influence how students actually use AI tools, and whether

they feel positively or negatively about using AI for academic writing, especially in crafting their undergraduate thesis. Although it offers valuable insights into how English education students perceive and utilize AI tools in their thesis writing process. It does not have a framework.

While previous studies have made important contributions to understanding and measuring AI literacy, there remains a significant research gap regarding AI literacy among English Education students. Although Pinski and Benlian (2023) and Carolus et al. (2023) are similar in offering comprehensive frameworks and AI literacy scales, they do not explore discipline-specific perceptions and applications of AI tools, especially in the context of language learning. Although Lérias (2024) highlighted institutional challenges in integrating AI literacy into higher education, it did not address students' individual literacy levels, ethical concerns, or experiences with AI tools in language-learning environments. The research by Harsyah (2024) is most similar to this study, as it investigated students' literacy and attitudes toward AI in academic writing. However, the study was not explicitly targeted at English Education students or the unique ethical and academic challenges they encounter.