CHAPTER II

LITERATURE REVIEW

This chapter presents the theories and previous studies relevant to the research. It discusses Artificial Intelligence in Education (AIED), pre-service English teachers, reading materials development, the theoretical framework, and previous research that support the study.

A. Theoretical Description

This section presents the main theories that underpin the study. It covers Artificial Intelligence in Education (AIED), pre-service English teachers, and reading materials development as the foundation for exploring the experiences of pre-service English teachers in using AI assistance tools.

1. Artificial Intelligence in Education (AIED)

AI assistance in the context of education refers to various forms of artificial intelligence-based support designed to assist the learning and teaching process. Holmes et al. (2019) explain that Artificial Intelligence in Education (AIED) encompasses a wide range of applications, from adaptive learning systems that provide step-by-step instructions, interactive dialogue systems, AI based exploratory learning, automatic analysis of student writing, to intelligent agents in educational game environments.

In line with these developments, several AI tools have become widely used to support pre-service English teachers in designing reading materials, especially in generating passages, adjusting text difficulty, and producing comprehension tasks. These tools have been widely discussed in recent studies examining AI supported material development for EFL contexts (Munaye et al., 2025). Some of the

commonly used tools include:

a. ChatGPT

AI tools, particularly ChatGPT, have become increasingly useful for pre-service English teachers in developing reading materials. ChatGPT helps teachers generate reading passages, simplify texts, and create comprehension questions quickly and efficiently. Ji (2024) notes that ChatGPT enables educators to produce written content and personalize learning tasks based on students' proficiency levels, making it a practical tool for reading material development.

b. Quillbot

QuillBot is another AI tool frequently used by pre-service English teachers to support the development of reading materials, especially when they need to paraphrase or simplify texts for different proficiency levels. As an AI driven paraphrasing application, QuillBot helps teachers rewrite sentences, adjust vocabulary complexity, and produce clearer or more accessible versions of reading passages. A recent study by Al Fajri and Rahman (2024) found that QuillBot assisted EFL students in producing more coherent and readable texts, demonstrating its usefulness in improving clarity and simplifying linguistic structures. Their research shows that QuillBot can effectively support teachers in preparing level appropriate reading materials.

c. GrammarlyGO

` GrammarlyGO, as an AI supported writing assistant, is commonly used by pre-service English teachers to refine and improve the quality of reading materials. This tool helps enhance text clarity, coherence, and accuracy, allowing teachers to

produce reading passages that are more accessible and appropriate for learners. Research on AI assisted feedback also supports the usefulness of Grammarly based tools in educational settings. For example, a systematic literature review by Yusnita et al. (2024) reported that Grammarly significantly improves text organization, grammar accuracy, and overall readability, making it beneficial for teachers who need to polish instructional materials. The review highlights that AI based writing assistants can support the editing process by providing instant suggestions and corrections, which aligns with the needs of teachers developing well-structured reading texts.

2. Pre-Service English Teacher in Junior High School

Pre-service English teachers are undergraduate students enrolled in English Language Education programs who are preparing to become professional English teachers through teacher education and teaching practicum. According to the National Academies of Sciences, Engineering, and Medicine (2019), pre-service teacher education equips teacher candidates with pedagogical knowledge, content knowledge, and practical teaching experience necessary for classroom practice. During their teaching practicum, pre-service English teachers are required to apply these competencies in authentic school settings, including junior high schools, where they design lesson plans, develop instructional materials, and facilitate English learning.

For pre-service English teachers assigned to junior high schools, developing appropriate reading materials is one of the essential pedagogical responsibilities. Junior high school students are in the early stages of developing English reading

comprehension and require learning materials that match their language proficiency, cognitive development, and curriculum objectives. Therefore, pre-service English teachers need to select, adapt, or develop reading texts that are age-appropriate, meaningful, and capable of supporting students' reading comprehension. Richards (2015) explains that pre-service language teachers should develop pedagogical content knowledge that enables them to transform language content into effective instructional materials suitable for learners' needs.

The increasing integration of Artificial Intelligence (AI) in education has expanded the responsibilities of pre-service English teachers beyond conventional material development. During their teaching practicum in junior high schools, they increasingly use AI assistance tools to generate reading passages, simplify texts, design comprehension activities, and organize instructional materials more efficiently. However, AI-generated materials still require careful evaluation to ensure that they align with curriculum objectives, students' language proficiency, and ethical standards. Darling-Hammond et al. (2020) emphasize that teacher education should prepare pre-service teachers to use emerging technologies critically and make sound pedagogical decisions rather than relying solely on technological outputs.

The competencies required of pre-service English teachers can be understood through the Technological Pedagogical Content Knowledge (TPACK) framework proposed by Mishra and Koehler (2006). The framework explains that effective technology integration depends on the interaction among content knowledge, pedagogical knowledge, and technological knowledge. In developing

reading materials for junior high school students, pre-service English teachers should not only understand English language content but also apply appropriate teaching strategies and select technologies that support students' learning needs. Farrell (2019) states that pedagogical knowledge includes lesson planning, instructional strategies, assessment, and material development, while Crompton et al. (2024) argue that technological knowledge also involves evaluating digital content, selecting suitable technologies, and using digital tools ethically.

Technology readiness is another important aspect influencing how pre-service English teachers integrate AI into reading material development. Barbour et al. (2024) found that although many pre-service teachers are familiar with basic digital technologies, they often experience difficulties in selecting appropriate digital resources and integrating technology effectively into instructional design. Similarly, Malabanan et al. (2021) reported that pre-service teachers generally demonstrate moderate technological readiness and still require guidance in designing technology-enhanced learning activities and evaluating digital instructional materials. These findings suggest that teacher education programs should continuously strengthen digital pedagogical competence to prepare future English teachers for technology-supported classrooms.

In the context of AI integration, technology readiness also includes AI literacy, ethical awareness, and the ability to critically evaluate AI-generated instructional materials. Holmes et al. (2019) argue that teachers should understand how AI systems operate, recognize their limitations, evaluate AI-generated content critically, and revise AI outputs to ensure they remain pedagogically appropriate.

For pre-service English teachers developing reading materials for junior high school students, these competencies are essential because AI-generated materials must be adapted to learners' proficiency levels, curriculum requirements, and instructional objectives rather than being used without critical evaluation.

3. Developing of Reading Materials for Junior High School

Reading materials development refers to the process of designing, selecting, adapting, and creating reading resources that help students understand written texts. These resources may include reading passages, vocabulary lists, comprehension questions, reading strategies, and follow up activities. Graves (2016) explains that developing materials is a systematic process that starts with identifying learners' needs, selecting suitable texts, planning learning goals, and evaluating the effectiveness of the materials. In the context of English as a Foreign Language (EFL), reading materials should not only give students linguistic input but also help them understand the structure of the text, genre features, and reading strategies. Richards and Reppen (2019) emphasize that effective reading materials must build text awareness, support comprehension skills, and be appropriate for students' proficiency levels.

In the context of junior high school education, reading materials should be specifically designed to accommodate learners' developmental characteristics and language proficiency. Junior high school students are generally in the early stages of developing English reading comprehension skills and require materials that are age-appropriate, engaging, and relevant to their daily experiences. Richards and Schmidt (2019) argue that instructional materials for adolescent learners should be

meaningful and connected to topics that reflect students' interests and social contexts. Therefore, reading materials should not only facilitate language learning but also encourage motivation and active participation in reading activities.

In developing reading materials, teachers must ensure that texts and activities are meaningful, relevant, and engaging. According to Tomlinson (2016), effective materials should provide rich, authentic, and comprehensible input through various text types such as stories, dialogues, and articles that reflect real language use and connect to learners' experiences. Materials should also achieve impact by stimulating learners' curiosity, attracting their attention, and encouraging emotional and cognitive engagement. Furthermore, reading materials should promote learner self-investment by encouraging students to use their existing knowledge, experiences, and critical thinking skills during the reading process. These characteristics help make reading activities meaningful rather than mechanical.

Nation and Macalister (2020) explain that reading texts must align closely with learners' language proficiency to optimize comprehension and engagement. This involves careful consideration of vocabulary load, sentence structure, and text length. For junior high school students, unfamiliar vocabulary should be limited or supported through contextual clues, glossaries, visuals, or teacher guidance. Sentence structures should be appropriate to learners' developing language abilities, while text length should be manageable to maintain students' attention and motivation. By adjusting these aspects, teachers can provide reading materials that are sufficiently challenging while remaining accessible to learners.

Developing effective reading materials also requires attention to the stages of reading instruction. Gebhard (2023) explains that reading lessons generally consist of pre-reading, while-reading, and post-reading activities. Pre-reading activities activate learners' background knowledge and prepare them for the topic. While-reading activities guide students to identify important information, understand the text, and apply reading strategies. Post-reading activities encourage reflection, discussion, and consolidation of learning. In addition, effective reading materials should support the development of reading strategies such as skimming, scanning, predicting, and inferring meaning from context, which help learners become more independent readers (Ur, 2019).

Selecting appropriate texts is another essential aspect of reading material development. Different text types, including narrative, descriptive, expository, argumentative, and functional texts, require different comprehension skills and instructional approaches (Richards & Schmidt, 2019). For junior high school students, teachers should select texts that align with curriculum objectives and are suitable in terms of readability, authenticity, cultural appropriateness, relevance, and pedagogical value. Careful text selection ensures that reading materials are meaningful, accessible, and capable of supporting students' language development and reading comprehension growth.

B. Theoretical Framework

The theoretical framework of this study is built on the intersection of pre-service English teachers' competencies, the use of AI tools, and principles of reading materials development. Pre-service English teachers, as undergraduate

students preparing to become professional English teachers, play a central role in designing, selecting, and adapting reading materials suitable for learners' proficiency levels (National Academies of Sciences, Engineering, and Medicine, 2019; Richards, 2015). Their competencies are conceptualized through the TPACK framework, which emphasizes the integration of content knowledge, pedagogical knowledge, and technological proficiency to create meaningful and effective instruction (Mishra & Koehler, 2006). With the growing use of digital technologies, pre-service teachers also need AI literacy to evaluate and ethically use AI generated content, as well as to make pedagogical decisions in digital learning environments (Holmes et al., 2019; Crompton et al., 2024).

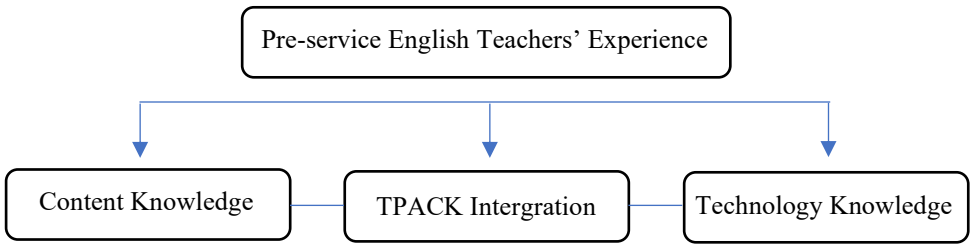
AI tools such as ChatGPT, QuillBot, and GrammarlyGO provide practical support for developing reading materials. ChatGPT assists in generating passages, simplifying texts, and creating comprehension questions (Ji, 2024). QuillBot helps in paraphrasing, adjusting vocabulary complexity, and producing clearer or more accessible versions of reading passages (Al Fajri & Rahman, 2024). GrammarlyGO supports teachers in refining text clarity, coherence, and grammatical accuracy, allowing for polished and well-structured materials (Yusnita et al., 2024).

The development of reading materials should follow established principles to ensure they are engaging, relevant, and aligned with learners' language levels (Tomlinson, 2016, 2018; Nation & Macalister, 2020). Materials must incorporate pre-, while-, and post-reading tasks, integrate appropriate reading strategies such as skimming, scanning, predicting, and inferring, and consider text type, readability, authenticity, cultural relevance, and pedagogical value (Gebhard, 2023; Ur 2019;

Richards & Schmidt, 2019). By combining pre-service teachers' TPACK based competencies with AI tools and sound principles of material development, high quality reading materials can be produced, ultimately enhancing learners' comprehension, engagement, and independent reading skills.

Overall, this framework explains that AI assistance, teachers' skills, benefits, and challenges are all connected and influence the final quality of the reading materials produced.

Picture 2.1 Conceptual Framework



C. Previous Research

Research on the use of AI tools among pre-service English teachers has increased in recent years, especially with the widespread adoption of AI based applications for academic and teaching purposes. Several studies have explored how pre-service teachers perceive and use AI; however, most of them focus on general experiences or attitudes rather than the practical process of developing reading materials.

Khasawneh (2024) conducted a study on the perceptions of future teachers specializing in English as a Foreign Language (EFL) regarding the use of ChatGPT in academic work. The results of this study revealed that students used ChatGPT to generate ideas, refine their writing, and search for bibliographic references. Despite

these benefits, the study also highlights concerns regarding plagiarism and the originality of students' work. This study focuses primarily on perceptions and ethical issues and does not address methods for using artificial intelligence (AI) in the development of instructional materials.

A study conducted by Dakhi (2025) examined the use of ChatGPT among Pre-service English teachers in Indonesia. The results showed that students used AI to assist them in writing, translating, and organizing their ideas. This suggests that AI functions more as an academic assistant than as a pedagogical tool for designing learning materials. The study did not examine how AI is specifically used to create reading materials.

In the Indonesian context, Wulandari and Purnamaningwulan (2024) explored the experiences of pre-service teachers during an AI assisted teaching practicum. They found that tools such as ChatGPT, Copilot, and Quizizz AI helped students prepare lesson plans, design activities, and support classroom tasks. However, the study also noted limited digital literacy and uncertainty about the ethical use of AI. The focus remained on teaching practicum experiences rather than the development of reading materials.

Hastomo et al. (2024) studied the technological readiness of Indonesian pre-service teachers in using AI powered tools. Their findings showed that students' competence was at a moderate level. While they could operate basic tools, they still required more training to apply AI effectively in teaching and learning processes. This research highlights the need for stronger digital training but does not analyze the actual process of creating materials with AI.

Savitri et al. (2025) investigated how pre-service English teachers use AI chatbots when developing ESP materials. The study showed that students often rely on AI for generating ideas, creating texts, and designing tasks, especially when they face difficulties. Although AI supports creativity, it also risks reducing independent thinking and pedagogical innovation among future teachers.

Overall, previous research have contributed valuable insights into how pre-service English teachers perceive and experience AI tools. However, most research focuses on perceptions, benefits, challenges, or general academic use. Only a few studies explore how AI is practically applied in designing teaching materials, and even fewer examine its use specifically in developing reading materials. Therefore, this study aims to address this gap by investigating the actual experiences, benefits, and challenges faced by pre-service English teachers when using AI assistance tools to develop reading teaching materials.