

CHAPTER 1

INTRODUCTION

This chapter presents the foundational elements of the study examining English teachers' experiences with AI-assisted module creation. Beginning with a comprehensive background that establishes the context of AI integration in educational settings, particularly within the Merdeka Curriculum framework, the chapter progresses through the research questions, objectives, scope, and significance of the study. This investigation focuses specifically on how English teachers at MTsN 2 Blitar utilize Perplexity AI for developing teaching modules, addressing both the opportunities and challenges in implementing AI- assisted technology in educational contexts.

1.1 Background of The Study

AI-assisted module creation has emerged as a transformative tool in supporting English teachers' instructional planning and material development (Wyk, 2023). The integration of AI technologies like Perplexity AI offers promising solutions to help teachers develop more engaging, personalized, and effective learning materials while reducing their workload (Psico- smart Editorial Team, 2024). This is particularly relevant as English teachers in Indonesia face increasing demands to create innovative teaching modules that align with curriculum standards while addressing diverse student needs (Burt, 2023). Rather than focusing broadly on general challenges in English language instruction, the critical role of AI in empowering teachers to efficiently create high-quality teaching modules warrants careful investigation, especially within the context of curriculum implementation at

the secondary school level (Burt, 2023).

The decision to select Perplexity AI as the focus of this study is based on several key considerations. First, Perplexity AI is specifically designed to generate concise, referenced, and contextually relevant content, making it highly suitable for academic module creation. Unlike other AI platforms, Perplexity AI provides real-time citation support and allows teachers to upload and analyze PDF templates, ensuring that generated materials follow the required structure of the Merdeka Curriculum. Additionally, Perplexity AI features an intuitive interface, supports prompt customization, and delivers rapid content generation, which addresses teachers' needs for efficiency and workflow improvement. The platform's ability to integrate multimodal resources and facilitate differentiated instruction further distinguishes it as an innovative tool for English language teaching. These unique features, along with its growing adoption among educators seeking reliable and curriculum-aligned AI assistance, make Perplexity AI an ideal subject for in-depth investigation in the context of module development at MTsN 2 Blitar.

Recent research highlights the importance of project-based and technology-supported learning models in the Indonesian "Merdeka Curriculum" (Freedom to Learn), which emphasizes autonomous, flexible, and innovative approaches to education. The use of new technologies, such as the inaRISK application and biopore technology, has been shown to improve students' cognitive, affective, and psychomotor abilities through project-based empathy learning. These findings underscore the necessity of integrating technology into curriculum development to enhance both teacher and student outcomes (Nurhayati, 2022).

According to recent findings from Silvhianny (2022) and Hamsiah et al. (2023), many Indonesian English teachers continue to face significant challenges in managing instructional planning and accessing digital resources. In a study involving 265 in-service EFL teachers, Silvhianny found that a large proportion of teachers relied heavily on self-initiated professional development, with many using online communities such as MGMP and TEFLIN to access lesson materials due to the absence of institutional support. Similarly, Hamsiah et al. (2023) surveyed educators in coastal regions and reported that although 57% of respondents regularly utilized digital tools in lesson preparation, limited infrastructure and inconsistent internet access remained key barriers to effective digital integration, especially in rural schools.

Professional development for English teachers is recognized as a multi-faceted process that involves ongoing reflection, adaptation, and the acquisition of new skills. Teachers are expected to develop competencies in pedagogical, personal, professional, and social domains, often through self-directed initiatives and participation in professional networks. The literature emphasizes that effective professional development leads to improved teaching quality, student engagement, and the ability to integrate technology, such as AI, into classroom practices (Khusna et al., 2022).

These findings point to an imbalance in workload, where teachers are expected to spend considerable time creating modules and adapting materials with minimal technological assistance or institutional infrastructure. In such environments, the lack of access to curated digital content, stable internet, and adequate training severely

limits the potential for instructional innovation. Consequently, students—particularly those in underserved areas—face reduced exposure to engaging and diverse learning experiences aligned with contemporary standards. To address these issues, there is a growing need for technology-supported solutions that streamline module creation, reduce teacher workload, and expand access to quality educational resources across different regions of Indonesia.

The integration of AI technologies, particularly Perplexity AI, has transformed module creation by enabling English teachers to efficiently develop engaging, differentiated, and curriculum-aligned learning materials (Psico-smart Editorial Team, 2024; Burt, 2023; Keet, 2024). At MTsN 2 Blitar, teachers utilize Perplexity AI to support the development of all three essential elements of English instruction in the Merdeka Curriculum: Listening-Speaking, Reading-Viewing, and Writing-Presenting (Wibowo & Lengkanawati, 2024). The AI tool assists in generating contextualized examples, scaffolded exercises, and assessments tailored to various proficiency levels, while teachers maintain full control over content adaptation, pedagogical approaches, and assessment design (Evanick, 2024; Shulman, 2024). This collaborative process enhances teachers' technological pedagogical content knowledge (TPACK), positioning them as skilled facilitators who leverage AI to enrich their instructional expertise without diminishing their critical role as decision-makers (Meylan, n.d.; Kim, 2024). By integrating AI, teachers can better address diverse student needs, foster critical thinking, and ensure alignment with curriculum competency standards (Burt, 2023; Keet, 2024).

Within the Merdeka Curriculum framework, AI-assisted module creation

directly supports teachers in developing materials for all three essential elements of English language instruction: *Menyimak-Berbicara* (Listening- Speaking), *Membaca-Memirsa* (Reading- Viewing), and *Menulis- Mempresentasikan* (Writing-Presenting) (Wibowo & Lengkanawati, 2024). For listening and speaking elements, teachers utilize AI to create interactive dialogue scenarios and pronunciation exercises that help students develop their oral communication skills (Rukiati et al., 2023). In reading and viewing activities, AI assists teachers in generating comprehension materials with varied difficulty levels and multimedia content that enhance students' understanding of texts (Rukiati et al., 2023; Pratama & Hastuti, 2024). For writing and presenting elements, teachers leverage AI to design structured writing tasks and presentation guidelines that help students improve their productive language skills (Pratama & Hastuti, 2024). This comprehensive integration of AI across all language elements enables teachers to create more engaging and effective learning materials while maintaining alignment with curriculum objectives.

In the context of MTsN 2 Blitar, AI-assisted module creation follows a structured design aligned with the Merdeka Curriculum's genre-based approach, incorporating the four key stages: Building Knowledge of the Field (BKoF), Modeling of the Text (MoT), Joint Construction of the Text (JCoT), and Independent Construction of the Text (ICoT) (Wibowo & Lengkanawati, 2024). Through Perplexity AI, teachers develop modules that integrate listening- speaking activities through interactive dialogue scenarios, reading-viewing exercises with varied comprehension materials, and writing-presenting tasks with structured

guidelines (Wibowo & Lengkanawati, 2024). The AI tool assists teachers in generating contextual examples, creating scaffolded exercises, and developing assessment materials while teachers maintain their role as decision-makers in selecting and adapting the content (Rukiati et al., 2023). For instance, when creating modules for reading comprehension, teachers use AI to generate diverse text types with varying difficulty levels, then customize the content and activities based on their students' needs and cultural context (Choukaier, 2024). This collaborative process between AI and teachers has shown promising results in developing more engaging and personalized learning materials while maintaining alignment with curriculum objectives (Burt, 2023).

While several studies have explored AI integration in education, there remains a significant research gap in understanding how teachers utilize Perplexity AI specifically for module creation within the Merdeka Curriculum framework. Previous studies have focused on different aspects: Fitria (2024) investigated the capabilities of Chat GPT, Perplexity AI, and ChatSonic in generating English essays, while Burt (2023) examined the role of AI as a collaborative tool in enhancing teachers' pedagogical capabilities. Campbell (2024) explored AI integration in curriculum development, and Wanasek (2024) studied AI-powered tools for educational content development. Additionally, recent research by Madani (2024) examined general AI implementation challenges in education, while Utami Lubis & Hz (2024) studied AI's impact on writing efficiency. However, none of these studies have specifically investigated Perplexity AI's role in supporting teachers' module development process, particularly in supporting the three key

elements of the Merdeka Curriculum (*Menyimak-Berbicara, Membaca-Memirs, and Menulis- Mempresentasikan*). Therefore, this study aims to fill this gap by examining English teachers' perceptions and experiences in utilizing Perplexity AI for module creation at MTsN 2 Blitar, providing valuable insights into the practical application of this emerging technology in curriculum implementation.

At MTsN 2 Blitar, AI-assisted module creation presents several unique characteristics that distinguish it from other implementations. First, it is the only school in Blitar region that systematically integrates Perplexity AI across all grade levels (7th, 8th, and 9th grades) to support the three key elements of English instruction in the Merdeka Curriculum: *Menyimak-Berbicara, Membaca-Memirs, and Menulis-Mempresentasikan*. Second, the school has pioneered a distinctive collaborative approach where English teachers work in teams to develop AI-assisted modules, allowing for peer review and continuous improvement of materials. The integration specifically targets the curriculum's objectives of developing students' ability to interact in formal and informal contexts, comprehend main ideas and relevant details, and create various text types aligned with social functions. For example, in 7th grade, teachers use Perplexity AI to develop listening-speaking modules that help students engage in discussions about real-world topics. In 8th grade, the AI assists in creating reading-viewing materials that enable students to comprehend and evaluate main ideas across different text genres while incorporating local contexts. For 9th grade, the integration focuses on writing-presenting modules that help students communicate ideas through structured paragraphs and presentations about contemporary issues.

MTsN 2 Blitar was selected as the research site based on several strategic considerations. First, it is the only school in the Blitar region that has systematically implemented Perplexity AI across all grade levels (7th, 8th, and 9th grades) in English module development. Second, the school has pioneered a distinctive collaborative approach where English teachers work in teams to develop AI-assisted modules, allowing for peer review and continuous improvement of materials. Third, this systematic implementation enables comprehensive observation of how teachers utilize AI technology in supporting the three key elements of English instruction within the Merdeka Curriculum framework: *Menyimak-Berbicara, Membaca-Memirsa, and Menulis- Mempresentasikan*.

Initial informal discussions with English teachers at MTsN 2 Blitar during August- September 2024 revealed distinct patterns across two phases of preliminary research. In August 2024, discussions with three English teachers focused on their initial experiences using Perplexity AI for module creation. Teachers reported more efficient module preparation, particularly in developing materials for *Membaca-Memirsa* activities, where Perplexity AI helped generate contextually relevant reading materials that could be quickly adapted to meet curriculum requirements.

Follow-up discussions in September 2024 examined the practical implementation aspects of AI-assisted modules. English teachers shared their experiences in using AI-generated materials in their classes, highlighting how Perplexity AI supported the creation of varied exercises and assessment materials that align with the Merdeka Curriculum's competency standards. These sequential observations suggest potential benefits while highlighting the need for systematic

investigation into the effectiveness of AI-assisted module creation in supporting English language instruction.

This study seeks to provide a comprehensive understanding of how English teachers at MTsN 2 Blitar utilize Perplexity AI in their module creation process within the Merdeka Curriculum framework. Specifically, it (1) investigates teachers' experiences and perceptions regarding AI integration in curriculum-based module development; (2) documents and analyzes the module creation process using Perplexity AI, offering insights for other educational institutions; and (3) examines the alignment between AI-generated modules and curriculum objectives, establishing best practices for technology integration. By addressing these points, this research fills a significant gap in the literature and contributes new knowledge about the practical application of Perplexity AI in Indonesian secondary English language instruction

1.2 Research Questions

To address the complex interplay between the Merdeka Curriculum, AI tools, and English language instruction at MTsN 2 Blitar, this study poses the following research questions:

1. What are the perceptions and experiences of English teachers at MTsN 2 Blitar in using Perplexity AI for module creation within the Merdeka Curriculum framework?
2. What are the differences in the module creation process when using Perplexity AI versus the conventional module creation process as experienced by English teachers at MTsN 2 Blitar?

3. To what extent do AI-generated modules align with the objectives of the Merdeka Curriculum in the context of English language instruction at MTsN 2 Blitar?

1.3 Objectives of The Study

The primary aim of this study is to investigate the use of Perplexity AI in English language module creation within the framework of the Merdeka Curriculum at MTsN 2 Blitar.

To achieve this, the following specific objectives have been formulated:

1. To explore the perceptions and experiences of English teachers at MTsN 2 Blitar in using Perplexity AI for module creation within the Merdeka Curriculum framework;
2. To analyze the differences in the module creation process when using Perplexity AI versus the conventional module creation process as experienced by English teachers at MTsN 2 Blitar;
3. To assess the alignment of AI-generated modules with the objectives of the Merdeka Curriculum in the context of English language instruction at MTsN 2 Blitar.

1.4 Scope and Limitation of The Study

This section outlines the scope and limitations of the study, providing a clear boundary for the investigation and acknowledging the factors that may influence the interpretation of the findings. The discussion is divided into two subsections: scope and limitation.

1.4.1 Scope

This subsection describes the specific boundaries and focus of the study, including the participants, setting, technological tools, and curriculum context.

1. Participants and Setting:

The study focuses on three English teachers at MTsN 2 Blitar who are actively involved in module development using AI technology.

2. Technological Scope:

The research is limited to Perplexity AI as the primary tool for module creation, and does not include other AI platforms or digital tools.

3. Curriculum Context:

The investigation is bounded by the implementation of the Merdeka Curriculum at MTsN 2 Blitar, with emphasis on how AI-assisted modules align with curriculum objectives and standards for English instruction.

4. Time Frame:

The study was conducted over a two-month period during the 2024/2025 academic year, during which teachers' module creation activities were observed and analyzed.

1.4.2 Limitation

This subsection identifies the main constraints and potential sources of bias that may affect the generalizability and interpretation of the research findings.

1. Sample Size and Representativeness:

The small sample size of three English teachers at a single institution may limit the generalizability of the results to broader populations of English teachers in Indonesia.

2. Geographical Constraints:

The study is conducted solely at MTsN 2 Blitar, which may not represent the diverse conditions and challenges faced by schools in other regions.

3. Research Duration:

The short duration of the research (two months) may not capture long-term impacts or changes in teachers' perceptions and practices regarding AI-assisted module creation.

4. Focus on Perplexity AI:

The exclusive focus on Perplexity AI means that potential benefits or limitations of other AI tools in module development are not addressed.

5. Student Learning Outcomes:

The research does not extend to measuring student learning outcomes or the effectiveness of AI-generated modules in classroom implementation.

6. Technical Limitations:

Technical limitations such as internet connectivity issues or technological constraints may have impacted teachers' ability to fully utilize Perplexity AI during the study period.

7. Researcher Subjectivity:

As the researcher, the researcher is an English teacher with experience in both traditional and technology-enhanced instruction, and she holds a positive attitude toward educational innovation. Her familiarity with the Merdeka Curriculum and direct involvement in module development may have shaped her perspectives on the opportunities and challenges of AI-

assisted module creation. Throughout the research process, the researcher made conscious efforts to maintain objectivity and minimize personal bias, including the use of triangulated data sources, adherence to established theoretical frameworks, and regular reflection on her assumptions and interpretations. Nonetheless, her positionality as a practitioner-researcher remains a potential source of bias that should be considered when interpreting the findings.

1.5 Significance of The Study

This research holds significance for several key stakeholders in the educational landscape:

1. **Educational Innovation:** The study contributes to understanding how AI can be leveraged to support the implementation of new educational frameworks like the Merdeka Curriculum. It provides insights into the practical application of AI-powered tools in curriculum development and instruction.
2. **Teacher Development:** The findings were expected to inform teacher training programs on the effective use of AI tools in curriculum development and instruction, specifically addressing the needs of English teachers in secondary education settings. This can potentially enhance teachers' digital literacy and instructional design skills.
3. **Policy Implications:** The findings of this study were expected to inform future policy decisions regarding the integration of AI tools in national curricula and highlight the need for targeted professional development

programs that equip teachers with both technological and pedagogical skills for effective AI adoption.

4. **Technological Advancement:** The study was expected to provide insights into the practical applications and limitations of AI in educational contexts, potentially influencing future developments in educational technology. It may highlight areas where AI tools like Perplexity can be improved to better serve educational needs.
5. **Student Learning:** Ultimately, the research aims to improve the quality of English language instruction in secondary schools. By exploring AI-assisted module creation, it could lead to more engaging and effective learning materials, potentially enhancing student learning outcomes and preparedness for global engagement.
6. **Curriculum Development:** The study may offer new perspectives on how AI can assist in creating more flexible, personalized, and context-appropriate curricula, aligning with the goals of the Merdeka Curriculum.
7. **Local Context Understanding:** By focusing on MTsN 2 Blitar, the study provides valuable insights into the application of AI in a specific Indonesian educational context, which can inform similar initiatives in comparable settings.

This study contributes significant theoretical and practical insights to the field of AI-assisted English language instruction and module development. Theoretically, it advances our understanding of how teachers integrate AI technology within the Merdeka Curriculum framework, particularly examining the

intersection between technological innovation and pedagogical practices. By investigating teachers' perceptions and experiences with Perplexity AI at MTsN 2 Blitar, this research provides valuable insights into the practical implementation of AI-assisted module creation in a real educational setting.

The findings were expected to inform both current practices and future developments in educational technology integration, curriculum development, and teacher professional development. Furthermore, this study addresses a significant gap in existing literature by specifically examining how AI tools support the development of English language modules within Indonesia's educational context, offering insights that can benefit similar implementations in other settings.

1.6 Operational Definition of Key Terms

This study employs several key terms that require specific operational definitions to ensure clarity and consistency:

1. AI-Assisted Module Creation

The process of developing English language teaching materials using Perplexity AI as a supportive tool, where teachers maintain control over content curation, pedagogical approaches, and assessment design while leveraging AI capabilities to generate initial content drafts, suggest learning activities, and provide language variations (Fitria, 2024).

2. Perplexity AI

An AI-powered platform specifically designed to provide concise information and assist in content creation, featuring the ability to generate contextual responses with citations and references (Perplexity

Team, 2024). In this study, it refers to the primary AI tool used by English teachers at MTsN 2 Blitar for module development.

3. Merdeka Curriculum

The current Indonesian educational framework that emphasizes learning freedom, competency focus, and project-based learning. In English language instruction, it specifically focuses on three key elements: *Menyimak-Berbicara* (Listening- Speaking), *Membaca-Memirs* (Reading-Viewing), and *Menulis- Mempresentasikan* (Writing-Presenting) (Kemendikbudristek BSKAP, 2022).

4. Module Creation Process

The systematic procedure of developing English language teaching materials, including planning, development, and refinement stages, with specific attention to incorporating the four stages of the genre-based approach: Building Knowledge of the Field (BKoF), Modeling of the Text (MoT), Joint Construction of the Text (JCoT), and Independent Construction of the Text (ICoT) (Kemendikbudristek BSKAP, 2022).

5. Prompt

In this study, a prompt refers to the specific instructions input by teachers into Perplexity AI to generate module content. The clarity and specificity of prompts directly influence the relevance and quality of AI-generated materials, as observed in the Indonesian secondary school context.

6. Teachers' Perceptions and Experiences

The collective understanding, attitudes, and practical encounters

of English teachers regarding the use of Perplexity AI in module creation, including their views on its effectiveness, challenges, and impact on their teaching practice (Fitria, 2024).