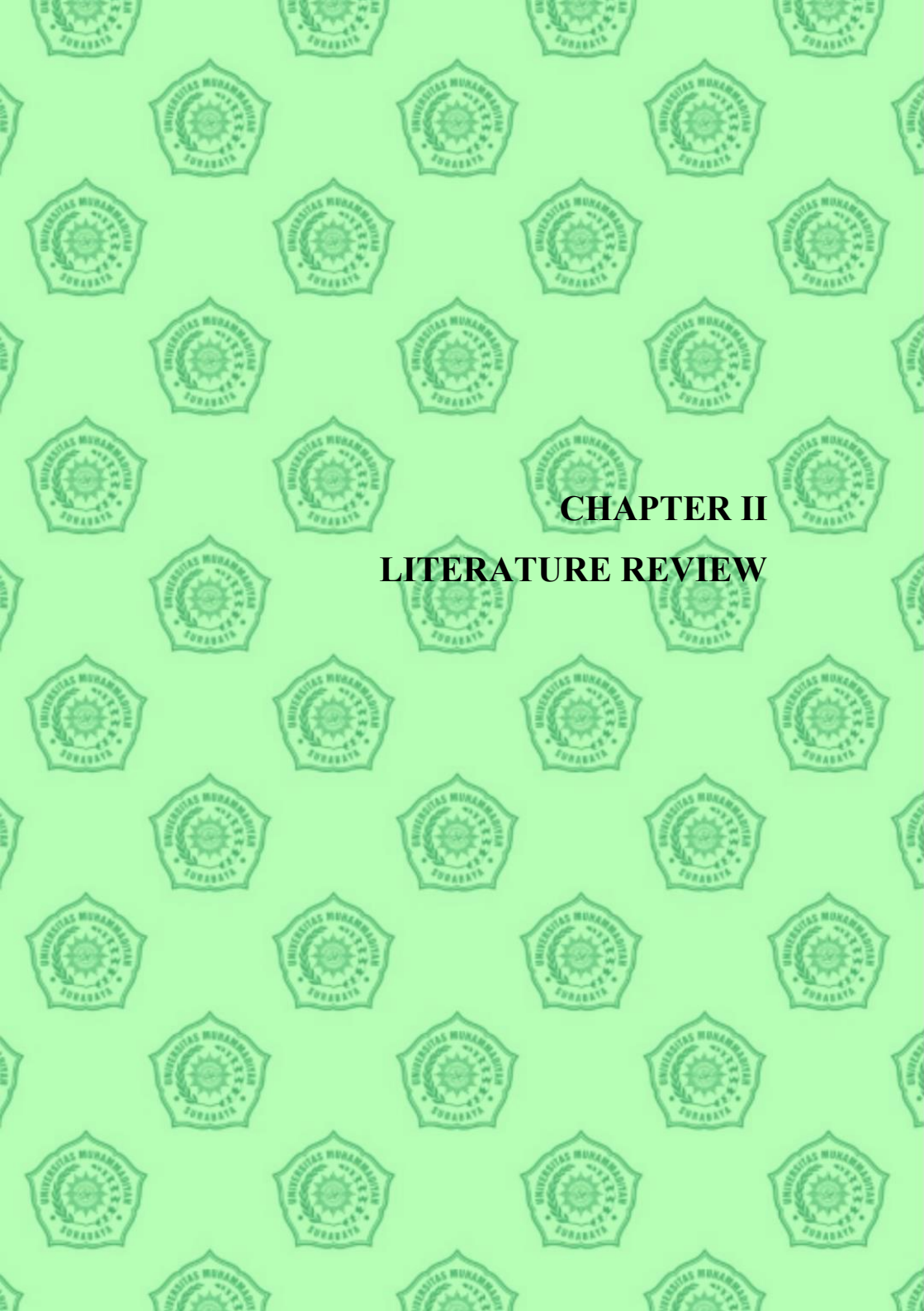




CHAPTER II

LITERATURE REVIEW

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This chapter consists of three parts. The first part is a review of the theoretical study, which includes Perception of Artificial Intelligence (AI), Artificial Intelligence (AI) in writing, Perplexity AI as a Tool in learning writing, Learning Studies, Writing, and Micro and Macro Skill in Learning Writing. The second part is a Review of Related Studies, and the last part is the theoretical framework.

2.1 Theoretical Review

2.1.1 Perception of Artificial Intelligence (AI)

Perception in this study refers to how students understand, interpret, and react use Perplexity AI for writing course. The most important area of computer science is artificial intelligence (AI), which focuses on developing machines and systems that are capable of reasoning, making decisions, and solving problems tasks that are normally performed by humans (Hasanah et al., 2025). Students' perception of writing learning when using technology, especially through AI, can reveal extent which students believe that AI technology can improve the quality of structured writing. Task efficiency is also maximized compared to before. Students can find learning easier and be able to identify several mistakes that occur. In the case of Gen AI tools, perceived usefulness means how much students think these tools help them do better in school, while perceived ease of use is about how comfortable and familiar they feel using these technologies (Al Massaad et al., 2024).

Collaboration to improve literacy with AI has a positive impact on students' perception in various situations. This means students might get more interested in the ways teachers present information, which could lead to the development of new teaching methods. This could help students think more openly and carefully about what they learn because being exposed to different ways of teaching might help them see ideas in new and different ways (Khairuddin et al., 2024). Different perspectives

can lead to diverse interpretations and understandings of the same subject matter, enriching the discourse with multifaceted insights. Perspective that influenced an individual's actions then influence his own perspective (Putri, R.S et al., 2024). Other than that, using technology in classrooms could encourage students to have better interaction in the classroom. Educators could utilize AI or chatbot to assist students to communicate about the topic covered and discussed in the classroom (Marrone et al., 2025).

2.1.2 Artificial Intelligence (AI) in Writing

Artificial intelligence is a major part of computer science in the era of Industry 4.0, the use of artificial intelligence (AI) technology in higher education is an unavoidable trend (Phan, 2023). Artificial intelligence (AI) can encompass language understanding, reasoning in writing development, and text generation are some examples of digital systems that use artificial intelligence (AI). Artificial Intelligence is changing education a lot, as AI becomes more common in learning settings, it's important to know what students think. This helps make sure AI is used in the best way possible in college and university settings (Batubara et al., 2025).

Artificial Intelligence (AI) supports sustainability in the field of education in general, which can enhance existing educational practices and help make it easier to provide social impact to the community. According to research on the application of AI in higher education, students interact with AI tools at several phases of the academic writing process, including idea generation, content drafting, language accuracy checks, and work revision. This method demonstrates how AI serves as both a writing help and a crucial support across various writing phases, mirroring how students incorporate technology into their writing processes (Nugrahawati, 2025).

In recent years, with more technological progress, many people have become interested in machine learning because of it “Artificial Intelligence” (AI) to assist the teaching learning activities. Through AI,

people find it easier to work and complete certain activities. AI is neither perceived as exclusively disadvantageous nor as exclusively beneficial but as a risk and an opportunity at the same time (Schwesig et al., 2023). The use of AI must follow procedures to achieve optimal results. This be a major change in the future for digital systems implemented in everyday life. Previous research indicates that artificial intelligence tools function as supportive resources in academic writing by assisting students in idea development, language accuracy, and revision processes, while the responsibility for composing remains with the learners (Utami et al., 2023). The introduction of AI usage must continue to be monitored to ensure equal opportunities for people in work, which evolve every day.

2.1.3 Perplexity AI as a Tool in Learning Writing

Perplexity is a type of AI that helps search for information on the internet. This aligns with (Hafifah, 2020), who found that searching for material resources was the most dominant ICT activity among Indonesian EFL students, indicating that using technology for information retrieval in the writing process is a well-established pattern in Indonesian EFL contexts. Perplexity AI is one of the latest innovations in educational technology. The most significant advances brought about by artificial intelligence (AI) in writing are AI based word and phrase autocompletion features and the use of alternative words (Alharbi, 2023).

Perplexity AI is an educational technology tools that students can use to help with their writing process, including creating ideas, enhancing grammar, or making their writing more coherent. Similarly, (Oktavia et al., 2024) found that students at Universitas Muhammadiyah Surabaya acknowledged that the convenience of ICT-based tools sometimes reduced the effort they invested in independent academic work, suggesting that dependency on digital tools remains an ongoing challenge in Indonesian higher education. Perplexity AI has features that distinguish it from other generative AI tools because of its focus on source-based information accuracy, which makes it relevant for academic writing processes.

This can help students obtain clear source materials according to their needs. Perplexity AI is a valuable academic aid, its use must be balanced with critical thinking and guided by ethical considerations (Patia et al., 2025). Perplexity AI give a contribute valuable insights to discussions on the integration of artificial intelligence technologies in academic settings, suggesting the potential for improved writing skills through the incorporation of such technologies. (Luthfiyyah et al., 2021) further support this, finding that the most effective technology-assisted writing activities are those involving focused, time-limited sessions directed at specific writing subtasks rather than lengthy or unguided interaction with the tool.

2.1.4 Learning Studies

In this study, learning writing refers to the process by which students acquire writing skills in an academic setting, particularly in writing courses in English Education study programs. EFL learning writing lessons need students to have some language skills so they can express their thoughts clearly when they write (Baskara, 2023). This process involves important steps such as gathering ideas, drafting, revising, and editing. The process of revising writing provides valuable insights into students writing outcomes and their cognitive processes during revision (Ke & Zhou, 2024). The writing process can begin according to the instructions given in sequence. Learning writing has different challenges and characteristics.

The contribution of technology in the educational environment is to provide evidence- based guidelines for the implementation of artificial intelligence (AI) writing assistance in higher education (Zhang, 2025). The growing use of Artificial Intelligence (AI) in education is causing major changes in teaching methods, and flipped learning is becoming more popular as a student-focused approach. Even though each has its own benefits, there is not enough research on how AI can work together with flipped learning, especially when it comes to important factors that affect English as a foreign language (EFL) learners, such as their awareness of their own thinking, improvement in writing skills, and feelings of boredom during language learning (Namaziandost, 2025). Developing language proficiency involves various skills, including

vocabulary, grammar, syntax, and the ability to express ideas clearly and accurately. These skills are important for students to write effectively in EFL in the future.

2.1.5 Writing

Writing is one of the four main language skills that students learn when studying English. Writing is viewed as a recursive process consisting of several stages, including planning, drafting, and revising. These language skills are important for communicating with others, and involve expressing thoughts and ideas in written form (Asiah et al., 2020). Writing is one of the key competencies that students must master, especially for those learning English as a foreign language (EFL). Writing requires mastery of grammar and comprehension, as well as the ability to organize ideas logically and creatively. In this study, learning writing refers to the process of developing students' writing skills in an academic setting, specifically in writing courses in English Education study programs (Ke & Zhou, 2024).

In technology-assisted writing, digital tools function as scaffolding that supports students at different stages of the writing process. Proficient writing abilities enable students to express themselves clearly, communicate their ideas effectively, and succeed academically (Song & Song, 2023). The integration of AI tools in writing instruction allows students to engage more effectively in each stage of writing, particularly in idea development, language refinement, and content revision, without diminishing their critical thinking skills. The importance of this is that students who are learning English as a second language or foreign language are expected to develop good writing skills (Ramadhani, Irma and Gusti Nur Hafifah 2022). Writing requires mastery of grammar and comprehension, as well as the ability to organize ideas logically and creatively. This result in a well-structured, organized, and easy-to-understand piece of writing.

2.1.6 Macro and Micro Skills of Writing

The ability to write in English as a second language involves mastery of various sub-components that are generally classified into micro (micro-skills) and macro (macro-skills). Micro skills focus on technical and linguistic elements, such as the ability to produce correct grammar and spelling, the use of appropriate grammar rules, and the development of an accurate linguistic system, such as the use of tenses, agreement, and pluralization. On the other hand, performance at the macro level involves more complex aspects of knowledge and communication, such as the use of coherent systems, the formation of rhetorical conventions, the formation of inter-idea relationships (primary and secondary), and the development of writing strategies that involve auditing and revising drafts through the use of feedback (Nguyen, 2016).

The integration of micro and macro skills is crucial in academia because writing requires mastery of both the language system and writing techniques in order to produce coherent, organized, and understandable messages. However, learners often face cognitive challenges where there is competition between these two dimensions; for example, when students focus too much on micro aspects such as grammatical accuracy and lexical sophistication, they tend to neglect macro aspects related to coherence and organization. Because of this, effective writing skills necessitate that students improve their structural and communicative language skills in order to effectively express their ideas and arguments to others (FODIL-CHERIF, 2021).

2.2 Previous Study

Hasanah et al (2025) examines the perception of fifth-semester English education students at Universitas KH.A. Wahab Hasbullah Jombang regarding the use of Perplexity AI for writing skills. This research employs a qualitative descriptive method with instruments consisting of questionnaires and interviews with 24 students. The results of this study show this 74.8% of student respondents positively using Perplexity to find ideas, grammar, references, and revise writing, but the

concerns related to plagiarism and excessive dependence on its use for learning.

Phan, (2023) examines students' perception of the application of AI technology in writing classes at Vietnam National University (VNU) in English classes. This study uses a mixed method with questionnaires and in-depth interviews with 100 students. The results of this study show that students having a positive attitude using Artificial Intelligence for improving the quality of student writing. In addition, learning motivation can increase when using AI because it makes it easier for students to learn to write. This research also serves as a resource for teachers in expanding teaching methods for students in the classroom to increase their interest in learning. This study found several obstacles due to technological anxiety, feature limitations, and over-reliance on the use of AI.

Slimi, Zouhaier et al (2025) explains student perception of Artificial Intelligence use in various aspects. It examines how artificial intelligence affects the learning experiences of students, their critical thinking skills, ability to self-assess, cognitive growth, and academic honesty. The research employed a formal questionnaire that was shared with 300 students through Microsoft Forms 365, yet the response rate was just 29.67%. The survey questions related to the integration of AI in various academic fields. The low response rate was due to the cultural background of the students, who were not interested in AI tool research. AI tools such as Turnitin promote honesty in academics, while services like ChatGPT are greatly appreciated for their contributions to students' assignments. Findings show that AI can significantly improve the educational experience.

Previous studies have shown that AI digital tools facilitate students' writing skills. However, most of these studies used qualitative methods, some used mixed methods, and focused on AI in general in different cultural contexts. The AI studied also did not focus on just one type, but rather on the perception of several types of AI that participants found easier to use. This study is relevant because it focuses on one type of artificial intelligence (AI), namely Perplexity, for English education

students at Universitas Muhammadiyah Surabaya with a larger range of participants, using quantitative methods with a survey research design. This study also focuses perception for English education students using Perplexity AI in learning writing, where Perplexity differs from other AI tools. The advantages of Perplexity AI are that it displays data sources according to the required material, usually in the form of journals/articles and related websites. In addition, this research aims to explore the experience, advantages, difficulties, and effects that students perceive concerning the use of Artificial Intelligence in learning writing within English courses.

2.3 Conceptual Framework

This study is based on the concept of technology-based language learning, particularly the integration of artificial intelligence (AI) in learning writing. Perplexity AI is considered an AI-based learning tool that supports the writing process through features such as idea development, grammar assistance, reference provision, and writing revision. The use of this technology is expected to enhance students' learning experiences, especially in academic writing. The research framework focuses on students' perception using Perplexity AI in learning writing, including its usefulness, support for writing development, and overall learning experiences.

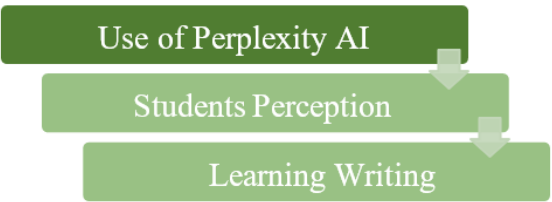


Figure 2.1 Conceptual Framework Perplexity AI in Learning Writing

The conceptual framework of this study illustrates the relationship among three interrelated constructs: the use of Perplexity AI,

student perceptions, and writing learning, as depicted in figure 2.3 above. Within this framework, the use of Perplexity AI shapes how students cognitively respond to it, which is then reflected in their perceptions based on their experiences. This study does not directly measure writing performance; rather, it focuses on how students view the role of Perplexity AI in facilitating the writing process and its acceptance in English writing instruction. Therefore, the findings of this study are expected to provide an overview of how Perplexity AI is perceived by English Education students in the context of writing instruction.

