

CHAPTER I

INTRODUCTION

A. Background of the Problem

In the current digital era, technology is developing rapidly and has influenced many fields, including education. One technological innovation that is starting to be widely used in the world of education is artificial intelligence or Generative Artificial Intelligence (Gen AI). AI itself is a system created to imitate the way the human brain works in thinking and solving problems. One form of AI that is currently being widely discussed is Generative AI, which is technology that can produce various types of content, such as text, images and sound, based on previously studied data. Generative AI is a branch of artificial intelligence that focuses on the ability of machines to generate new content based on patterns learned from existing data.

According to Sasmita (2020), in completing assignments given by lectures, various sources are needed that can be used as references. These sources can be books, journals, scientific articles, or those from the internet such as blog websites and so on. Before the internet, the main problem faced by the world of education, especially students, was access to information sources. Currently, students can use the internet as an alternative learning source which is quite effective and efficient (Sasmita, 2020).

Entering the current modern era, students' need for information sources that can be accessed via the internet is also followed by the birth of various

intelligences in the field of technology to provide information, such as the advancement of artificial intelligence (AI) in the field of providing information. Artificial Intelligence (AI) itself can be defined as a program on a computer that is designed to have the ability to study data so that it can carry out a process of thinking and acting that resembles human actions (Supriyadi & Asih, 2020). AI has proven to be a transformative tool in many educational contexts, offering innovative approaches to teaching and learning (Narayan, 2024).

Among the various AI-based applications and technologies in education, one of the most striking is the use of chatbots powered by artificial intelligence. These chatbots have gained considerable attention from educators, students, and other stakeholders, as they offer a unique opportunity to create learning experiences that are more interactive and also more personalized. With their ability to adapt to each individual's needs, these chatbots can help increase student engagement in the learning process, provide real-time feedback, and answer questions quickly and efficiently (Oktarin et al., 2024).

These chatbots are designed with the aim of simulating interactive and engaging real-time conversations with learners, so that they can receive relevant feedback, helpful advice and direct helpful guidance. One example of an advanced AI chatbot that exists today is Google Gemini. This chatbot has shown immense potential and promise in a variety of different domains, including the field of language learning, where users can experience a more dynamic and effective learning experience (Waziana et al., 2024). With this technology, the teaching and learning process becomes easier and more enjoyable for learners.

In the context of language learning, especially English, generative AI has many benefits. In the context of language learning, especially English, generative AI has many benefits. This technology can help students in compiling texts, provide the necessary language learning materials according to request, and also various kinds of materials needed in language learning.

In learning English, there are four skills that must be mastered, namely: listening, speaking, reading, and writing. These skills cannot be separated from each other, because they are all important and support each other. Writing is one of the language skills that plays an important role in learning a second language (L2) and is also one of the most challenging aspects of language learning, especially for second language (L2) learners.

Writing is not only used in formal situations, but also in informal situations where someone sometimes cannot express their opinions, ideas, knowledge, information, and feelings to others. In Indonesia, where English is taught as a foreign language, students often have difficulty with academic writing, which requires a high level of grammatical accuracy, coherence, vocabulary, and writing fluency (Kartika, 2024). Traditional writing teaching methods, such as lectures, assignments, and peer reviews, are often ineffective in meeting the diverse needs of students (Andewi & Hastomo, 2022).

Many students do not have the opportunity to receive personalized and direct feedback, which is essential for improving writing skills. In addition, students are prone to anxiety when working on writing assignments, especially those related to the grammar or vocabulary they use (Kartika, 2024). Therefore,

students will have very limited writing skills, especially when feedback is not provided efficiently or effectively.

When expressing an opinion, analysis, or argument in writing, the essay is the genre commonly used. In formal education, essays have become a rather important component. High school students are taught structured essay formats to improve their writing skills, and essays are frequently used by universities in selecting prospective students. In both secondary and higher education, essays are used to assess mastery and understanding of subject matter. Students are asked to explain, comment on, or evaluate a topic of study in the form of an essay.

During university courses, students are often required to complete one or more essays prepared over several weeks or months. Furthermore, in fields such as the humanities and social sciences, midterm and final exams often require students to write short essays in two or three hours. Especially in English language education, the essay is a crucial component of a language learner's writing ability. Sometimes, students face difficulties in this form of writing. The difficulties experienced by these students as explained above in short are failure to determine their arguments in writing.

One of the newest AI-based assistants that has become an indispensable asset for scientists as well as for students is Gemini (Bard). These assistants offer comprehensive support from literature reviews to instant theory advice, and they have the potential to revolutionize research. Research in the Journal of Academic Ethics shows that Gemini achieved a perfect score of 100%, in

providing information assistance including providing assistance in explaining scientific papers, exploring bibliographic databases, and formatting references. Qualitative assessment of the responses also suggests that AI chatbots can be a valuable tool for researchers, but Gemini appears to be more engaging and accurate through the entire scientific writing procedure (AlSagri et al., 2024).

Observing the prevalent phenomenon of students increasingly using Gemini as a reference point for completing their assignments, the researcher was inspired to conduct research on the use of Gemini artificial intelligence (AI) in essay writing. Therefore, the proposed research title is: "**Students' Ability in Writing Argumentative Essay Using Gemini Artificial Intelligence (AI).**"

B. Identification of the Problem

Writing ability is a language skill considered to be a high-level proficiency in language mastery. This is because writing requires not only a basic understanding of grammar and vocabulary, but also skills in structuring ideas, arguing points, and organizing information effectively. One of the biggest problems in student writing is that writers often fail to prove their points. They fail because they do not support their points with concrete details. Given the phenomenon of students using Gemini artificial intelligence (AI) as a source of information for assignments, the researcher formulates the problem: how is students ability in writing argumentative essay using Gemini Artificial Intelligence (AI)?

C. Limitation of the Problem

This research specifically focuses on fourth semester class A students registered in the English Tadris study program at UIN Imam Bonjol Padang. It examines students' ability to write argumentative essays by using Gemini AI. This study does not include other language skills such as listening, reading, or speaking, nor does it involve students from non-English language programs or different educational levels. This study focuses on fourth-semester students in the English Tadris program, as they are currently taking an essay writing course this semester, which includes training in argumentative essay writing—a type that aligns with the application of Gemini AI in essay writing. Furthermore, this study is limited to a specific timeframe and a predetermined sample size to ensure ease of management and depth of analysis.

D. Formulation of the Problem

After writing the background and identifying the problems in this study, the researcher formulated the following research questions: How is students ability in writing argumentative essay using Gemini Artificial Intelligence (AI)?

E. Purpose of the Research

The purpose of this study is to obtain results or answers to questions about students' ability in writing argumentative essays using Gemini AI in fourth semester class A students at Imam Bonjol State Islamic University Padang.

F. Significance of the Research

This research has significant implications for language educators, curriculum developers, policymakers, and learning media developers. By understanding students' ability to write argumentative essays using Gemini AI, educators can implement more effective learning media that meet various student needs. Curriculum developers can design programs that incorporate the use of Gemini AI to develop writing skills, especially better essay writing. Policymakers can use these findings to advocate for educational policies that support innovative language teaching approaches. Learning media developers can use this innovation in other learning processes or with other skills in language learning. Furthermore, this research will benefit students by providing practical learning media to improve their writing skills in essay writing, thereby increasing academic achievement and greater confidence in using English.

G. Definition of the Key Terms

Students are individuals who are formally enrolled in an educational institution with the primary purpose of acquiring knowledge, skills, and competencies through systematic learning processes. They are active participants in the teaching and learning process, engaging in various academic activities such as attending classes, completing assignments, and undergoing assessments to achieve educational goals (Brown & Lee, 2015). In the context of higher education, students are not only learners but also critical thinkers and researchers who are expected to develop both academic and personal growth.

Gemini AI was previously named Bard AI. Personalized Tutoring for Effective Learning: Gemini AI stands as a cutting-edge tutoring platform driven by artificial intelligence, using advanced machine learning algorithms to uniquely customize the learning experience for each student. By analyzing student learning behavior and performance data, Gemini AI adapts teaching strategies and content delivery to meet individual learning needs (Gond et al., 2024).

Writing is the ability to express ideas, thoughts, or information effectively through writing and also requires practice and feedback to improve writing skills.

An essay is a form of writing that consists of a group of paragraphs about a main idea (Zemach & Rumisek, 2003). The topic or main idea developed in an essay is called a thesis statement or thesis sentence. This thesis statement is different from the topic sentence that is often found in a paragraph. The thesis statement is found in the introductory paragraph, and is continued or developed in the following paragraphs as supporting paragraphs and closed with a short concluding paragraph.

An argumentative essay is an essay that contains the writer's opinion on a topic or problem that aims to convince the reader, especially when there are differences in beliefs or opinions between the writer and the reader (Rahmatunisa, 2014).

According to Jacobs et al. (1981), aspects of writing that are essential for assessing the quality of a piece of writing include idea/content development, organization, grammar, and mechanics (Brown & Abeywickrama, 2003).

