

CHAPTER III

METHODOLOGY

3.1 Research Design

This study employed a case study design to delve deeply into the experiences and perceptions of higher education students using the Gemini chatbot for learning English. Creswell (2007) defined a case study as a variation of ethnography in which researchers conducted an in-depth exploration of a bounded system (e.g., activities, events, processes, or individuals) based on extensive data collection. This design was well-suited for gaining a comprehensive understanding of the nuances and complexities involved in students' interactions with the chatbot. By focusing on a specific group of students within a particular educational context, the case study approach allowed for an in-depth exploration of individual experiences, challenges, and outcomes.

The case study aimed to provide rich, detailed insights into how university students used the Gemini chatbot in their English language learning and how this usage impacted their language proficiency. Through the case study approach, this research utilized various data collection methods, including direct observations and interviews, to gain a holistic view of the chatbot's use. By focusing on students' experiences, the case study also identified various challenges faced by students in using the Gemini chatbot. These challenges included technical issues, difficulties in understanding the chatbot's instructions or feedback, and other barriers that might affect learning effectiveness. This information was crucial for offering specific and practical recommendations for further development and enhancement of the Gemini chatbot and similar language learning technologies.

The results of this case study were expected to provide not only an in-depth understanding of students' experiences but also broader insights that could be applied in wider contexts.

3.2 Participants

The study "Exploring Higher Education Learners' Experience of Utilizing Gemini Chatbot in English Language Learning" involved ten students from the English Language Education program at a public university in North Sumatra. Participants were selected through purposive sampling to ensure they had relevant backgrounds and skills in using technology for language learning. Based on interviews, the educational backgrounds of the participants in English language learning were notably diverse but shared common elements. Most participants began learning English at an early age and engaged in both formal and informal educational activities. The diversity in educational backgrounds among participants highlighted the importance of early and sustained exposure to the English language. Whether through formal education, extracurricular programs, or parental support, these experiences collectively shaped their proficiency and enthusiasm for learning English.

Observations were conducted in the classroom to directly observe how students interacted with the Gemini chatbot during English language learning sessions. The observations covered various aspects, such as the use of chatbot features, responses to instructions, and the impact of this technology on student participation and engagement in the learning process.

In addition to observations, structured interviews were conducted to gain a deeper understanding of students' experiences with Gemini. The interviews were designed to explore students' experiences, challenges, and difficulties in using the chatbot as a learning aid for English. Each interview lasted approximately 30 minutes and was conducted in a comfortable and pressure-free environment to encourage participants to speak openly and honestly about their experiences.

Ethical considerations played a crucial role in this study. Before commencing the research, all participants were provided with clear information about the study's purpose, procedures, and their rights as participants. Participants agreed to take part in the study, and their consent was obtained. The study also

guaranteed data confidentiality by maintaining participants' anonymity and ensuring that all collected information was used solely for academic purposes. Participants were given the freedom to withdraw from the study at any time without any consequences. Therefore, the research adhered to high ethical standards to protect the rights and well-being of the participants.

3.3 Data Collection Procedure

To address the research questions posed in this study, data collection was carried out using two methods: observation and interviews.

3.3.1 Observation

Morris (1973) defined observation as the activity of recording phenomena with the aid of instruments and recording them for scientific or other purposes. The first step in data collection involved preparation, starting with the selection of participants. English Education students at a state university in North Sumatra were chosen as participants. They were briefed on the research's objectives and asked for their voluntary participation. Data collection instruments, including observation sheets, were prepared to record aspects observed during the use of the Gemini chatbot. Direct observations were conducted by researchers who observed students during learning sessions using the Gemini chatbot in class. Each observed aspect, such as comprehension of material, use of chatbot features, active engagement, response to feedback, and encountered difficulties and challenges, was recorded on the observation sheet. Researchers marked the appropriate criteria based on observations and wrote additional notes or comments to provide context or further details about the observations.

3.3.2 Interview

Allison et al. (1996) defined an interview as a face-to-face situation in which the researcher seeks information or opinions from a subject. Before conducting interviews in this study, the researcher created a list of questions. The researcher then scheduled interviews at convenient times for participants. Interviews were conducted individually or in small groups, depending on participants' preferences

and comfort in sharing their experiences. The interviews began with background questions to understand the context and experiences of participants in learning English. Questions then focused on their experiences using the chatbot, comprehension and progress, engagement and motivation, difficulties and challenges, as well as recommendations and reflections. Each interview was recorded with the participant's consent to facilitate transcription and data analysis. Using observation sheets and interviews, this research aimed to obtain deep and detailed insights into students' experiences in utilizing the Gemini chatbot for learning English.

3.4 Data Analysis Technique

Data analysis followed the concepts of Miles, Huberman, and Saldana (2014). The process included the following steps:

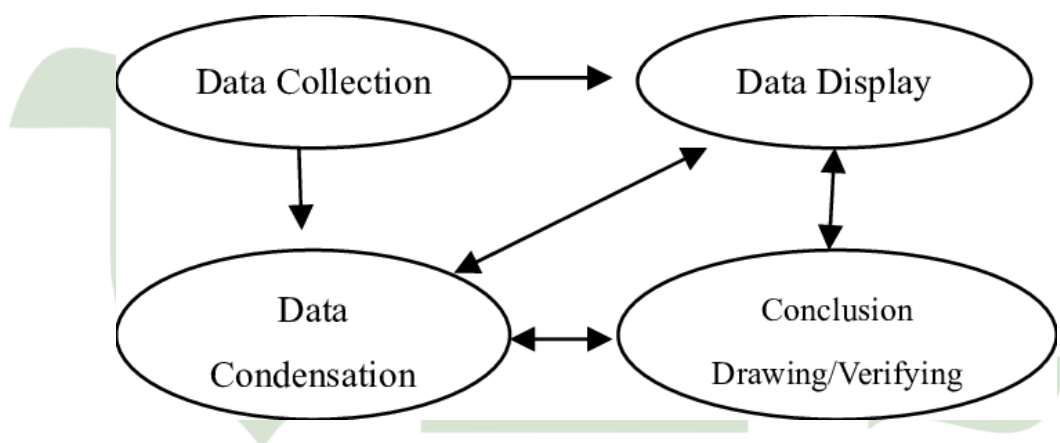


Figure 1: Data Analysis Concept by Miles, Huberman, and Saldana (2014).

3.4.1 Data Collection

Data was collected through two primary methods: observation and interviews. Observations were conducted using observation sheets to record aspects observed during students' use of the Gemini chatbot, such as comprehension of material, use of chatbot features, active engagement, response to feedback, confidence in using English, and encountered difficulties and challenges. Interviews were conducted individually or in small groups using pre-prepared questions to explore participants' experiences, comprehension, and perceptions of using the Gemini chatbot. All

interviews were recorded (with participant consent) to facilitate transcription and data analysis.

3.4.2 Data Condensation

The data condensation process involved selecting, focusing, simplifying, abstracting, and transforming the raw data collected. After data collection, interview transcripts and observation notes were thoroughly read and analyzed to identify key themes. Irrelevant or excessive data was discarded, while important data was highlighted and coded according to emerging themes. For example, responses regarding material comprehension, chatbot feature usage, and confidence were grouped according to predefined categories.

3.4.3 Data Display

Following data condensation, the next step was to present the data in an organized and easily understandable manner. Data was structured in tables, charts, or graphs to illustrate the relationships between emerging themes. This visualization aided in understanding the patterns and trends within the data. For instance, tables might have been used to show the frequency of use of specific chatbot features, while charts might have illustrated changes in students' confidence levels before and after using the Gemini chatbot.

3.4.4 Conclusion Drawing and Verification

The final step involved drawing and verifying conclusions. After presenting the data, the researcher began to draw initial conclusions based on the patterns and themes identified. These conclusions were tested and verified through data triangulation, comparing findings from observations and interviews to ensure consistency and accuracy. Valid conclusions provided deep insights into the effectiveness and challenges of using the Gemini chatbot in English language learning and offered practical recommendations for the development and implementation of similar technologies in the future.