

## CHAPTER V

### CONCLUSION AND SUGGESTION

#### 5.1 Conclusion

Based on the analysis conducted, it can be concluded that the use of the Gemini Chatbot in English language learning among higher education learners generally presented a positive and supportive experience. Respondents reported that the chatbot was easy to use and facilitated the achievement of their learning objectives with an intuitive interface and enjoyable interactions. The ease of initial use and engaging interactions enhanced learners' motivation and satisfaction with their English learning process.

However, significant difficulties were also identified. Slow internet connections often disrupt the user experience by causing delays in chatbot responses and interruptions in communication. These issues diminished the effectiveness of interactions and could undermine the overall learning experience. Additionally, the chatbot struggled with understanding language variations such as slang and accents, which increased the cognitive load for users and disrupted the learning process. These limitations highlighted the need for improvements in the technical and inclusive design of the chatbot to better handle language variations and ensure a more optimal learning experience.

Overall, while the Gemini Chatbot showed great potential in supporting English language learning, addressing technical issues and improving language comprehension capabilities are crucial for maximizing its benefits and effectiveness in educational contexts.

#### 5.2 Research Limitations

Based on the direct experiences of the researchers during this study, several limitations were encountered that could be important considerations for future researchers aiming to improve their studies. This study naturally has limitations that

need continuous improvement in future research. The limitations identified in this study include:

1. Limited Sample Size

This study involved only ten students, which is a relatively small sample size. This can limit the generalizability of the findings to a broader population. Studies with larger sample sizes might provide more representative and valid results.

2. Sample Selection Bias

The use of purposive sampling means that participants were selected based on specific criteria, which might not reflect the diversity of the entire population of English Education students. This could lead to bias in the research results as the selected participants may have different interests or skills in using technology compared to other students.

3. Limitations of the Observation Method

Classroom observations only capture behaviors that are visible during specific learning sessions and may not reflect the use of the chatbot in other contexts or outside the classroom. Additionally, the presence of the researcher during observations might influence the behavior of the participants (Hawthorne effect), meaning it does not fully represent their actual interactions with the chatbot.

4. Limitations of Structured Interviews

While structured interviews allow for systematic data collection, they may lack the flexibility to explore participants' answers in-depth. Participants might feel restricted in explaining their experiences in detail or discussing issues not covered by the interview questions.

5. Influence of Local Context

This study was conducted at a single state university in North Sumatra, so the results may be highly contextual and not easily applicable to other universities with different cultural, academic, or technological contexts. Research in various geographic locations and educational institutions is needed to understand a broader range of user experiences.

### 5.3 Implications

The study underscores the necessity of addressing technical and design challenges associated with the Gemini Chatbot to enhance its effectiveness in English language learning. Practically, developers must focus on improving the chatbot's performance by optimizing its algorithms to function efficiently under various internet conditions. Ensuring stable and fast internet connections through collaborations with internet service providers can mitigate issues related to slow response times and connectivity disruptions. Incorporating features that allow the chatbot to handle diverse language inputs, such as slang and accents, will make it more inclusive and better suited to the varied linguistic needs of learners. Additionally, implementing offline functionality could provide users with uninterrupted access to the chatbot in areas with unreliable internet access. Educators and users alike should be informed about the importance of a stable internet connection and be equipped with guidelines to troubleshoot connectivity issues. By addressing these practical considerations, the Gemini Chatbot can be made more reliable, accessible, and supportive in the language learning process.

The findings contribute to the theoretical understanding of how technology influences learner experience and engagement. They highlight the importance of aligning technological tools with learner goals and preferences, as discussed in educational theories related to user experience. The positive impact of ease of use and enjoyable interactions with the chatbot supports theories that emphasize the role of technology in enhancing learning experiences and motivation. Conversely, the challenges faced due to slow internet connections and difficulties in understanding language variations reveal limitations in the current design and technical capabilities of the chatbot. These issues underscore the need for adaptive learning tools that cater to individual needs and contexts, as suggested by adaptive learning theories. The study also points to the need for further research on the intersection of technology and learner support, emphasizing the importance of inclusivity and accessibility in educational technology design. Overall, these

theoretical insights can guide future developments in chatbot technology and its application in educational settings.

#### **5.4 Suggestion**

Based on the findings of the study, several recommendations can be made for future research, further development, and practical application of chatbot technology in English language learning.

1. **Future Research with Larger and More Diverse Samples**

Future research is recommended to involve larger and more diverse samples. Including more participants from various backgrounds and institutions will provide a more representative understanding of the experiences and challenges associated with using chatbots in English language learning. This approach will also enhance the validity and reliability of the research findings.

2. **Improve Technical Infrastructure**

To address issues related to slow internet connections, it is essential to improve the technical infrastructure. Collaborations between chatbot service providers and internet service providers can help ensure stable and fast internet connections. Additionally, optimizing chatbot algorithms to be responsive even under slower connection conditions can enhance user experience.

3. **More Holistic Data Collection Methods in Future Research**

Future research should consider more holistic data collection methods, such as combining in-depth interviews and long-term observations. This approach will provide a deeper understanding of the patterns of student interaction with the chatbot and its impact on their English language proficiency. By combining various methods, it is hoped that research can make a more comprehensive and meaningful contribution to the development of educational technology in the future.