

CHAPTER V

CONCLUSION AND SUGGESTION

5.1 Conclusion

This study investigated the effect of the Learning Analytics-Supported Flipped Classroom model on students' mastery of writing conditional sentences at SMAN 1 Bangsal by comparing the learning outcomes of the experimental class (XI-6), which was taught using the proposed model, and the control class (XI-7), which received conventional instruction. Drawing upon the findings and discussion presented in Chapter IV, several conclusions can be formulated to address the research question and achieve the research objectives established in Chapter I.

First, the findings indicate that the Learning Analytics-Supported Flipped Classroom model had a statistically significant positive effect on students' mastery of writing conditional sentences. The results of the independent samples *t*-test revealed a significant difference in the post-test performance of the experimental group ($M = 83.33$, $SD = 8.91$) and the control group ($M = 79.22$, $SD = 3.32$), leading to the rejection of the null hypothesis (H_0) and the acceptance of the alternative hypothesis (H_1). These results provide empirical evidence that addresses the research question by demonstrating that the implementation of the Learning Analytics-Supported Flipped Classroom model resulted in significantly higher writing achievement than the conventional instructional approach.

Second, the observed difference between the experimental and control groups was not only statistically significant but also educationally meaningful in practical terms. This is supported by the effect size analysis, which produced a Cohen's *d* value of 0.61, representing a medium effect. The result suggests that incorporating Learning Analytics into the Flipped Classroom model provided a meaningful contribution to enhancing students' mastery of writing conditional sentences, resulting in greater learning gains than those achieved through conventional teaching methods.

Third, despite obtaining a higher mean score on the post-test than the control group, the experimental group demonstrated a lower normalized gain score ($g =$

0.16) compared with the control group ($g = 0.53$). This outcome can be attributed to the ceiling effect, as the experimental group entered the study with a substantially higher pre-test mean, leaving less opportunity for improvement toward the maximum possible score. Therefore, the lower normalized gain should not be interpreted as evidence of the model's lower effectiveness; instead, it reflects the mathematical limitation associated with the students' relatively high level of prior achievement at the beginning of the study.

Fourth, with regard to the pedagogical aspects examined in this study, the integration of personalized feedback generated from Learning Analytics data in Google Classroom with well-structured face-to-face learning activities enabled the teacher to identify students' learning difficulties, particularly in mastering more complex forms of conditional sentences, such as Type III and mixed conditionals, and to provide appropriate instructional interventions. These findings are consistent with the theoretical framework presented in Chapter II, particularly the 4W Reference Model and the theory of connectivism, which emphasize that digital learning data can be effectively utilized to inform evidence-based instructional decisions and improve the teaching and learning process.

Overall, the findings of this study lead to the conclusion that the Learning Analytics-Supported Flipped Classroom model is an effective instructional approach for enhancing senior high school students' mastery of writing conditional sentences. Its effectiveness is supported by both statistical evidence and practical significance. The improvement in students' writing performance can be attributed to the integration of independent pre-class learning, data-driven feedback based on Learning Analytics, and systematically organized in-class writing activities, which together create a more effective and supportive learning environment.

5.2 Suggestion

Based on the findings, conclusions, and limitations identified in this study, several recommendations are offered to stakeholders who may apply or further develop the Learning Analytics-Supported Flipped Classroom model.

5.2.1 For English Teacher

English teachers are encouraged to implement the Learning Analytics-Supported Flipped Classroom model when teaching conditional sentences or other challenging grammatical topics. The findings indicate that combining independent pre-class learning with feedback informed by Learning Analytics can effectively enhance students' writing mastery. To maximize the effectiveness of classroom instruction, teachers are advised to review Learning Analytics data, such as students' video viewing records and quiz performance, before each face-to-face session. This approach enables teachers to design targeted and differentiated writing activities that address students' specific learning needs rather than relying solely on general explanations.

5.2.2 For School Institution

Educational institutions, including SMAN 1 Bangsal, are encouraged to improve the technological facilities necessary to support the implementation of Learning Analytics-based instruction. This includes ensuring reliable internet connectivity, providing adequate digital devices, and maintaining the effective use of a Learning Management System, such as Google Classroom. In addition, schools are recommended to organize professional development programs that equip teachers with the knowledge and skills required to interpret Learning Analytics data and utilize it to deliver more personalized and data-informed instruction.

5.2.3 For Future Researchers

Future research is recommended to involve a larger and more heterogeneous sample in order to enhance the statistical robustness and generalizability of the findings. Extending the duration of the study beyond a single academic semester is also suggested to investigate the long-term impact of the Learning Analytics-Supported Flipped Classroom model on students' retention and transfer of writing skills. Furthermore, subsequent studies may examine the ceiling-effect phenomenon observed in the present research by including participants with more varied levels of initial proficiency. Researchers are also encouraged to explore the

application of this instructional model to other areas of English grammar or different language skills beyond the teaching of conditional sentence writing.

5.2.3 For Student

Students are encouraged to participate actively in pre-class learning activities provided through the Learning Management System. Consistent engagement with instructional videos and independent learning tasks can better prepare students for classroom activities, enabling them to make more effective use of personalized teacher feedback and to participate more successfully in collaborative writing exercises.