

CHAPTER V

CONCLUSION AND SUGGESTION

1.1. Conclusion

Based on the research conducted at SMPN 37 Medan on the effectiveness of the Problem-Based Learning (PBL) model integrated with Science, Technology, Engineering, Mathematics (STEM) on the material of the human circulatory system towards the learning outcomes and self-efficacy of eighth-grade junior high school students, it can be concluded that:

1. The Problem-Based Learning (PBL) model integrated with Science, Technology, Engineering, Mathematics (STEM) is effectively used in education to improve student learning outcomes. This is indicated by the t-test results, where the significance value (2-tailed) was found to be 0.016, while the t-table value was 0.05, significant at 5%. Therefore, with the calculated t value $<$ the t-table value, H_0 is rejected and H_a is accepted, confirming that the PBL-STEM model is effective in enhancing student learning outcomes.

The percentage of learning indicator achievement in the experimental class is higher than that in the control class. In the control class, the average percentage of learning indicator achievement is 83.30% with a status of achieved, and in the control class, the average percentage of learning indicator achievement is 75.08% also with a status of achieved.

2. The Problem-Based Learning (PBL) model integrated with Science, Technology, Engineering, Mathematics (STEM) is effectively used in enhancing student self-efficacy. This is supported by t-test results, where the significance value (2-tailed) was 0.005, while the t-table value was 0.05, significant at 5%. Thus, with the calculated $t <$ t-table value, H_0 is rejected and H_a is accepted, indicating that the PBL-STEM effectively improves student self-efficacy.

There was an increase in scores from the pretest to the posttest in every dimension within the experimental class. The magnitude dimension increased from 52.4 to 63.9. In the generality dimension, it rose from 52.8 to 63.9, and

similarly, the strength dimension increased from 52.9 to 64.0. This indicates that the implementation of the PBL-STEM model in the experimental class resulted in an improvement in student self-efficacy.

1.2. Suggestion

Following the outcomes and conclusions shared, the researcher offers the following recommendations:

1. Researchers should ensure optimal use of time during the study and strive to maintain an environment conducive to learning.
2. Other researchers interested in further investigating the implementation of the Problem-Based Learning (PBL) model integrated with Science, Technology, Engineering, Mathematics (STEM) need to thoroughly understand the STEM learning approach.