CHAPTER V
CONCLUSION AND RECOMMENDATION

5.1 Conclusion

Based on the implementation of the integration of STEM-ESD into PjBL model that has been described in the previous chapter, there are some conclusions that can be drawn by the researcher, such as:

1. The students have various learning style. Among 19 students there are 9 students with four-modal preference (VARK), two students with tri-modal preference (one student VAK and one student VRA), three students with bi-modal preference (two students AK and one student AR), and 5 students with single-modal preference (one visual, two aural, one read/write, and one kinesthetic).
2. The integration of STEM-ESD into PjBL accommodates every student's learning styles, and suitable for the implementation of 'Kurikulum Merdeka' that embrace differentiative, and integrated learning. The implementation of the integration of STEM-ESD into PjBL on alternative energy topic has been implemented 100% based on the observation done by the observer and also video recording analysis. All the five syntax oh The integration of STEM-ESD into PjBL were fully implemented. The construction of the lesson plan and worksheet played a big role for the learning process to be carried out systematically.
3. The model implementation can enhance students' multiliteracy. There is significant difference in students' STEM Literacy with low category (N-Gain 0.253). Specifically, scientific literacy has medium category, and low category for mathematic (N-Gain 0.036) and technology engineering literacy (0.073). Student with the highest improvement in STEM Literacy is VRA student with 1.51 logit gap. In environmental literacy, knowledge domain enhancement is at medium category with N-Gain 0.371 and the most improved student is VAK learner. In attitude and behavior of environmental literacy VAK student also reach the most improved student. As for sustainability literacy, the most improved student is VAK learner in knowledge and behavior domain, but AR

learner in attitude domain. In conclusion, students with tri-modal preferences showed a significant improvement rather than other learning styles.

5.2 Recommendation

Based on the finding of the research that has been conducted and concluded, there are several recommendations that can be delivered by the researcher. Which are:

1. The integration of STEM-ESD into PjBL can be implemented in the science learning process to accommodates various learning styles and enhance students' multiliteracy. It is suggested to make sure the scientific process is well conducted.
2. It is important to consider even distribution of students' learning preferences in every group. A group with various learning style is highly recommended as it can bring higher achievement for the group members.
3. Printed handbook might be helpful for Read/write learner, so it will be much appreciated if the teacher provides it in the learning process.
4. Re-design process, prototype design description and product description may be added in the worksheet to highlight students' scientific process.
5. Ensure student to deliver critical questions during the communication phase to enhance their critical thinking.
6. It might be burdensome if the budget was Rp150.000,- per group if it was conducted in the school that have many classes. As a solution, the solar panel and battery can be re-used.