CHAPTER V
CLOSING

5.1. Conclusion

Based on the results of research and discussions that have been carried out on the six previous research journal articles regarding the learning device development to improve students' mathematical problem-solving ability, the following conclusions can be drawn:

1. From the research that has been carried out by researchers, it is found that the tendency of journal articles are as follows:

a. The process of learning device development to improve students' mathematical problem-solving ability, the most widely used of the six journal articles used as a source of synthesized data, was using the Plomp development model which consisted of 3 stages, namely preliminary research, developing or prototyping stage and assessment stage.

b. The background of the learning device development is due to the low mathematical problem-solving ability of junior high school students. One of the factors causing this is the lack of facilities and infrastructure that support the mathematics learning process.

c. Several articles that mention the indicators of students' mathematical problem-solving ability state that students' mathematical problem-solving abilities are low in the indicators of devising a plan and carrying out the plan.

d. The learning materials used in the process of developing mathematics learning device to improve students' mathematical problem-solving ability is mostly using two-variable linear equation systems.

e. The learning model used in the process of developing mathematics learning device to improve students' mathematical problem-solving ability is the most widely used discovery learning model.

2. In an effort to improve students' mathematical problem-solving ability, a mathematics learning device is needed that supports the learning process, including lesson plans and student worksheets. These efforts can be in the form of developing mathematics learning device using various models or approaches. However, these efforts yielded different and varied results. This is due to the variety of models or approaches applied to the developed learning device and the differences in students' mathematical problem-solving ability. Therefore, a metasynthesis was carried out with the following results:

a. Articles that use the Borg and Gall development model in developing learning device to improve students' mathematical problem-solving ability get the highest validity scores from the others, so that the Borg and Gall development model becomes a development model that produces better learning device compared to other development models.

b. Articles that use a scientific approach in developing learning device to improve students' mathematical problem-solving ability get the highest effectiveness scores compared to others, so that the scientific approach is a better learning approach than other learning models/approaches.

c. Articles that use learning materials for a two-variable linear equation system, using the Plomp development model and guided inquiry learning models get a higher effectiveness value than others, so it can be said that this learning material is a learning material that can further improve students' mathematical problem-solving ability.

d. From the results of the interpretation carried out, it can be said that the learning device developed with the development model on the learning materials used between articles when exchanged between these studies will

both get the same results, which will produce the same learning device that can improve student's mathematical problem-solving ability.

e. Another interpretation result is that learning devices developed with the Plomp development model and guided discovery learning models will always produce learning device that can improve students' mathematical problem-solving ability.

f. The results of the criticize obtained from the six articles are that the author should explain how the process of how they are applying learning models and development models in developing the learning device in article, as well as the obstacles it faces in developing the learning device.

g. The result of another criticize is that the author should describe the pretest and posttest scores as well as the scores in each indicator in measuring students' mathematical problem-solving ability which is useful for finding out how the improvement is meant for students' mathematical problem solving ability.

5.2. Suggestion

Based on the conclusions previously mentioned in this study, the suggestions that can be given by researchers are as follows:

1. In an effort to improve the mathematical problem-solving ability of junior high school students, the researcher suggests using a mathematics learning device by applying the right model or approach. In accordance with the results of the previous discussion, it can be seen that a good approach to use is to use a scientific approach. The development of learning device characterized by active knowledge sharing with a scientific approach obtains the highest increase in mathematical problem-solving ability and met classical completeness.
2. Based on the results of the research provided by the researcher, readers are expected not to rush in drawing conclusions, because the information and data obtained by the researchers in this study are limited.