CHAPTER V
CLOSING

5.1 Conclusion

Based on the results of research, we can conclude:

1. Spatial ability of students who are given geometry learning based on Van Hiele theory with mind mapping technique is higher than students who are given geometry learning by direct learning.
2. The use of mind mapping technique on the learning of geometry based on Van Hiele theory give a significant influence to increase students' spatial ability in each level.
3. There is interaction between learning with students' mathematical initial ability (high, medium, low) in the students' spatial ability .

5.2 Implication

The main focus in this study is to see the learning of geometry by using Van Hiele theory with mind mapping technique to students' spatial ability. Stages performed in this learning, begins with the stage of information, namely teachers and students using question and answer about the objects learned in the stage of student thinking. It is done with a quick direct step that students do some direct activities by using three-dimentional object (cubes and beams) to understand the concepts to be published at each meeting. Guided student activities and teacher procedures that have been exposed in SAS at each meeting. Then the description description: the teacher guides the students in understanding any concepts or conclusions of what students have understood through learning activities. Then the advanced stage of the teacher provides the task that students can do in different ways and make the students become more capable with the knowledge of geometry that has been known before. The last deepening is that the students try to do whatever they have studied and done by considering a logical network that is easily described and applied using the mind. From the results of research conducted then the process of learning mathematics with the learning of geometry

with the theory of Van Hiele with mind techniques provide a good influence on the spatial ability of students.

5.3 Suggestion

Based on the conclusions and implications of the research, here are some suggestions that need to get the attention of all interested parties on the use of geoemtri learning based on Van Hiele theory with mind map technique in the process of learning mathematics. Suggestions are as follows:

1. Teachers
   a. This research suggests that geometry learning by Van Hiele theory with mind mapping technique can; (1) good influence on the development of students' spatial ability, (2) can make students actively involved in learning. Thus, the approach of geometry learning based on Van Hiele theory with mind map technique is very potential to be applied in mathematics learning especially geometry material.
   b. In learning geometry based on Van Hiele theory with mind map technique, teachers play an active role as facilitator and moderator. Therefore, the mathematics teacher who does this learning needs to pay attention to the following things: (a) the availability of teaching materials and models or visual aids so that students can make direct observation of the objects. (b) it takes consideration for teachers to intervene so that students' efforts to achieve their actual development are more optimal. (c) it is necessary to consider the knowledge that the student possesses and have various possible solutions to the problems presented. This is so that teachers can improvise in response to questions from students.
   c. In every learning the teacher should create an atmosphere of learning that gives students the opportunity to express mathematical ideas in their own language and manner, so that in learning mathematics students become daring to argue, more confident and creative.
2. Relevant Institution

a. Learning of geometry based on Van Hiele theory with mind mapping technique can be used as an alternative in developing students' spatial ability on cube and beam subject so that it can be used as input for school to be developed as an effective learning strategy for other mathematics subject.
b. Because Van Hiele's theory-based geometry learning with mind mapping techniques can develop students' spatial abilities, it is hoped that the support of related institutions to socialize the use of geometry learning based on Van Hiele theory with mind mapping techniques in schools through MGMP mathematics, training of math teachers or seminars.

3. Next Researcher

a. The ability studied in this research is the spatial ability of class VIII students on the material of cube and beam, therefore for the next researcher can apply the learning of geometry based on Van Hiele theory with mind map technique on the class and different material and other ability aspect.
b. For researchers who want to do research with geometry learning based on Van Hiele theory with mind map technique, should be on bigger population, which consists of some schools so that the result can generalize the use of geometry based Van Hiele theory with mind map technique more broadly also