CHAPTER V
CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

5.1 Conclusions

The conclusion of this research is found based on the research data result and discussion which is answering the purposes of the research about scientific literacy analysis of 8th grade student science textbook for semester 1. The object was analyzed by using PISA standard by following its context and competencies to categorize scientific literacy component in the textbook content and test units.

1. The result of scientific literacy context analysis showing that the textbook contains some contexts and competencies of scientific literacy based on PISA categories. Based on the data, the textbook contains mostly context of personal and local/national context, while there is almost no context for global field in most chapters of the book. No theme including sub-context of hazard category, fewer sub-context for natural resources and environment category, while the most category of sub-context contained in the book are about health and frontiers of science and technology.
2. According to the data result of each competency representation in 8th grade student science textbook for 1st semester, first competency among the 3 competencies resulting 54.20% which is explaining phenomena scientifically with mostly related to indicator A (recalling and applying appropriate scientific knowledge), and chapter I consist the most of units categorized into first competency with total 32 test units. The second competency resulting only 3.82% contained in the textbook with mostly indicator A (Identifying the question explored in a given scientific study) appeared. Third competency resulting 41.98% with mostly indicator B appeared (analyzing and interpreting data and drawing appropriate conclusions) which contained mostly in chapter I.

5.2 Implications

Based on the research analysis, not all test units were categorized for having scientific literacy competencies because some units were mostly asking about the basic knowledge such as definition of a term, function of an organ or device, using equation to calculate the data, mentioning a name of the term related to the question which are those types of question mainly require students to memorize the theory mentioned in the textbook before the test units part with the same sentences or organizations. The book contained fewer questions related to interacting with the role of science in daily life.

Science textbook of 8th grade students for 1st semester, it already contain some contexts and competencies of scientific literacy which is good but still need a lot of improvements such as connecting science of natural phenomena into the real global issue with better context than just explaining a definition or mentioning a term as example. Some test units also need to be modified to be more engaging students to improve their scientific literacy knowledge. The book contents still lacking of competency of evaluating and designing scientific enquiry which is important to improve student thinking in evaluating question or issue scientifically than just the ability to re-explaining and interpreting data.

5.3 Recommendations

Based on the finding of this research, the analysis of scientific literacy in junior high school students' textbook for science subject, there are some recommendations for another researchers and other parties including teacher, school, and government who can get involved in improving students' scientific literacy as follows:

5.2.1 Another Researcher

Researchers can find better ways to improve student scientific literacy at school by organizing more details of criteria or example of scientific literacy context and test units to be main resources or reference for government to improve the current existing textbook or by creating the new one based on the research.

5.2.2 Teacher

Teacher can improve the teaching planning by considering content that could support student to understand why they should learn about science and how science can actually affect their daily life also what is the importance of learning science in each topic. Teacher also can bring another teaching resource from external like book resources, journals, and learning media such as model or video.

5.2.3 School

School can conduct scientific literacy assessment toward students to evaluate current knowledge of students and result can be used to find and prepare for more learning sources which can support students to improve their scientific literacy knowledge for better education development. The result also could be useful for other parties such as researchers or government to improve the learning sources.

5.2.4 Government

Student science textbook can be improved with a better content by considering and including more competencies of scientific literacy to be more meaningful knowledge for students. Education should be about guiding students to prepare themselves to face the world with their knowledge scientifically instead of just memorizing concept theoretically without knowing how actually science and technology affect our daily life which are very important for every development aspect.

To fulfill the need of scientific literacy to improve student knowledge, the government who is taking part in developing education system and publishing education sources (textbook) nationally, can check the criteria or example of context and test item based on each categories of scientific literacy competencies through PISA sample units at www.oecd.org/pisa/test.

It is also recommended to revise the curriculum syllabus and competencies by considering the effective time normally used in learning at school and the possibility of students in learning at home.

The government can also recruit young book developers who can help to give more interactive content to learn in a fun way through textbook based on the past researches from existing journals considering the technology development for education occurs in 21st century.