

CHAPTER 5

CONCLUSION, IMPLICATIONS AND RECOMMENDATION

5.1 Conclusion

Based on the research, which was conducted online and distributed to junior high school students in every grade all over Indonesia, it can be conclude that there is a difference between students' attitudes toward science before and during COVID-19 pandemic. In this research, it can also be conclude that students' attitudes toward science is better before COVID-19 pandemic. However, the decline in average score of students' attitudes toward science during COVID-19 pandemic is not equal to bad attitudes; instead, the average score is still categorized as good. Further conclusion of this research is present below:

- 1) The process of science learning in Indonesia during COVID-19 pandemic holds an important role in affecting students' attitudes toward science. Because of the implementation of new policy by Indonesia Ministry of Education and Culture, which abruptly changed the education system in Indonesia, students are stunned and not prepared in learning science.
- 2) Students' attitudes toward science before COVID-19 pandemic is good and have similar average score among the sub-scale, which display the balance of students' perception in science. Contrary to that, students' attitudes toward science during COVID-19 pandemic display unbalance result in sub-scale average score. Nevertheless, students' attitudes toward science before and during COVID-19 pandemic are categorized as good.
- 3) The only N-Gain score, which has positive value of 0.12, is in sub-scale Unfavorable Outlook. This means the students' view on science improved and students became more approving toward science. They are also more encouraged to engage with science than before COVID-19 pandemic. The positive gain might be affected by the advancement of science during COVID-19 pandemic and how science is proved as the most important key in the discoveries of COVID-19 pandemic.

5.2 Implications

Based on the result and discussion above about attitudes toward science before and during COVID-19 pandemic of junior high school students, it was revealed that during COVID-19 pandemic, students have higher favorable outlook on science and more positive in dealing with science. On the other hand, students have higher control on themselves, more positive behavior and attitudes toward science, and higher intentions in pursuing science for their future. However, attitudes' toward science before and during COVID-19 pandemic of junior high school students are both categorized as good.

5.3 Recommendation

There are several recommendations for future research regarding students' attitudes toward science in COVID-19 pandemic outbreak. The recommendations are as follow:

- 1) Considering the sample of this research only cover 20 province of Indonesia, the future research should include all provinces. This may lead to a better and more valid result since it will overview at least one representation for each province and a broader discussion could be produced.
- 2) The Attitudes toward Science Questionnaire was only distributed through three online platforms in a short amount of time, In the future, it would be best if the research will be distribute through several other online platforms and available for at least longer than a week. Because of the limitations of distribution, not every junior high school students were able to access the questionnaire.
- 3) The last suggestion is to create a more detailed statement for the questionnaire that depicts real situations during COVID-19 pandemic. This could result on a better and broader view regarding students' attitudes toward science during COVID-19 pandemic. Not only that, it would be best if the future research also includes more than one open-ended question to find the missing specific information.