CHAPTER 5
CONCLUSION AND RECOMMENDATION

A. Conclusion

Referring to the main objective of this learning which is to examine the dynamics of students’ self-regulated learning on understanding causal pattern in ecosystem via multi-user virtual environment, based on research finding, analysis and discussion several conclusions could be made as follow.

Experimental quantitative outcomes revealed that students were more engaged in an individual learning activity rather than a group learning activity within the Multi User Virtual Environment. Qualitative findings expand that outcome by pointing out that this condition might be attributed to some problem: incompetent group leader, reliance on face-to-face discussion rather than using online platform and poor time management.

Experimental quantitative outcomes revealed that there was a significant difference of students’ self-regulated learning after learning via the Multi User virtual environment; although a low gain was reported for both motivational and learning strategy scale. Qualitative findings expand that outcome by providing evidence that students need more prompt from teacher to be able to increase their self-regulated learning skill. Experimental quantitative outcomes revealed that there was a significant difference of students’ understanding of causal pattern in ecosystem after learning via Multi-User Virtual Environment, with a medium gain reported.

Correlational analysis showed that among the self-regulated learning components only: individual engagement, internal goal orientation, critical thinking and self-efficacy that significantly correlated with academic achievement, which in this study refers to students’ understanding of causality patterns. Highest correlation that could be recorded in this study was shown by the individual engagement. Pathway analysis showed that only internal goal orientation and individual engagement components of self-regulated learning that
have a significant effect to students’ achievement, in terms of conceptual understanding of causality.

Qualitative findings expand that outcome by providing evidence that students were overly focus on their individual learning thus remaining them unable to obtain the overall idea about the learning activity thus rendering the relatively mediocre performance during achievement test. Overall, the qualitative findings provide evidence that most students were unable to apply a variety of learning strategy, they tend to overuse the help seeking strategy to solve every problem.

B. Recommendations

The introduction of the educational psychology and educational technology issue in this study is an attempt by the researcher to provide a wider perspective on how research study could be conducted in the field of biology education in particular and science education in general. It is suggested for future researchers that have a similar interest to study this issue, should devise a more comprehensive intervention that could foster students’ self-regulated learning. For instance an externally regulated learning environment in which teacher monitor students learning could be applied as most students were still unable to complete the group learning activity. A class discussion in the end of learning activity would also important as it will endorse the collaborative learning environment instead of competitive learning environment. Future research should also focus in one of the self-regulated learning components (eg. focus on the motivation or the learning strategy).

Regarding the educational technology, in future research a more elaborative, interactive and visually appealing learning media should also be devised in order to maximize the potential of technology-enhanced learning environment. Future researcher should also cover different topic that are usually difficult for students to learn. A larger sample should also be administered in this kind of study to provide answer for the internal validity unable to be addressed in this study.