Improving Student Learning Outcomes through Reciprocal Learning in Environmental Education Course

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Abstract
This study was conducted in terms of classroom action research aiming for improving learning outcomes through reciprocal learning in environmental education course for 35 students at social science education study program in Universitas Negeri Jakarta in Jakarta in Indonesia. This research consisted of two cycles in implementing reciprocal learning in environmental education course including preparing material related to environmental education issues, providing several topics about environmental problems, student grouping, giving different problems for each group related to air pollution, urban problems, mangrove forest damage, coastal erosion, and ozone depletion, each group using reciprocal learning involving activities of predicting, questioning, clarifying, and summarizing about environmental problems discussed. The results confirmed that student learning outcomes in cycle 1 and 2 achieved 60.1 % and 81.2 %. It can be said in conclusion that application of reciprocal learning can improve student learning outcomes in environmental education course for 35 students at social science education study program in Universitas Negeri Jakarta in Jakarta in Indonesia.

Keywords: Reciprocal learning; student learning outcomes; environmental education

1. Introduction
Environmental conservation can be achieved together with carrying out environmental education (Arsenijevic & Bohanec, 2014). Activities done by society is without environmental destruction and provides advantages maintained at certain level to local societies through environmental education (Wang, Zhong, Zhang, & Zhou, 2014; Sarmiento, Romero, Roman, & Martin, 2018). Preservation of the natural environment and culture can be conducted by implementing good and proper environmental education (Safitri, 2017; Safitri & Putra, 2018; Jalani, 2012; Kara, Deniz, Kilicaslan, & Polat, 2011; Sarmiento, Romero, Roman, & Martin, 2018; Yovo, Vodouhe, Assogbadjo, & Sinsin, 2017; Tisca, Istrat, Dumitrescu, & Cornu (2016). Satisfying natural curiosity of individuals, enhancing environmental awareness, and strengthening visitor’s pro-conservation values predict environmental education (Arsenijevic & Bohanec, 2014; Safitri, Umash, Yunaz, Marini, & Wahyudi, 2019; Safitri, Yunaz, Umash., Marini, & Wahyudi, 2019). However, there was less detail explanation about the way of providing effective environmental education.

2. Literature review
Environmental education should be done to keep ecological integrity and improve the quality of natural ecosystems (Arsenijevic & Bohanec, 2014). Conservation cannot be conducted and successful without proper environmental education given to society. Practice of using resources sustainably and preserving environment is urgent to bring environmental protection and practices to happen (Wang, 2014).
Zhong, Zhang, & Zhou, 2014; Sarmiento, Romero, Roman, & Martin, 2018). Activities of societies do not have a detrimental effect on the environment by applying environmental education as the foundation (Safitri, 2017; Safitri & Putra, 2018; Jalani, 2012; Kara, Deniz, Kilicaslan, & Polat, 2011; Sarmiento, Romero, Roman, & Martin, 2018; Yovo, Vodouhe, Assogbadjo, & Sinsin, 2017). Implementation of environmental education could develop societies’ knowledge or perception of the environment and aware of environmental problem and its solution leading to have a sustainable environment in the future (Arsenijevic & Bohanec, 2014; Safitri, Umasih, Yunaz, Marini, & Wahyudi, 2019; Safitri, Yunaz, Umasih, Marini, & Wahyudi, 2019). However, most of previous studies do not give detail explanation about the steps of doing proper environmental education.

3. Method

This research used classroom action research including planning, acting, observing, and reflecting steps in the spiral model by Kemmis and McTaggart to improve student learning outcomes for 35 students at social science education study program at Universitas Negeri Jakarta in Jakarta in Indonesia. In the step of planning, lesson plan was created related to implementation of reciprocal learning in environmental education course. In the step of acting, implementation of reciprocal learning in environmental education course in two cycles including preparing material related to environmental education issues, providing several topics about environmental problems, student grouping, giving different problems for each group related to air pollution, urban problems, mangrove forest damage, coastal erosion, and ozone depletion, each group using reciprocal learning involving activities of predicting, questioning, clarifying, and summarizing about environmental problems discussed. In the step of observing, student learning outcomes due to implementation of reciprocal learning in environmental education course were recorded. In the step of reflecting, evaluation was made associated with the success of student learning outcomes caused by implementation of reciprocal learning in environmental education course and this research was continued to the next cycle if the target of student learning outcomes improvement established 80% not attained. The cycles done in this research can be seen in Figure 1.

4. Results and Discussion

In the step of planning, lesson plan of implementing reciprocal learning in environmental education course was created. In acting step, material connected with environmental education issues and several topics about environmental problems were distributed to the groups. The class were divided into 6 groups and given different problems for each group related to air pollution, urban problems, mangrove forest damage, coastal erosion, and ozone depletion. The use of reciprocal learning was implemented in group discussion. The students were encouraged to predict, question, clarify, and summarize about the environmental problems and alternative solutions.
In observing step, student learning outcomes associated with apprehending about the environmental problems connected with the root causes of environmental problems faced, impacts towards environment, anticipation of the environmental impact, and environmentally preventive action for the future especially for the air pollution, urban problems, mangrove forest damage, coastal erosion, and ozone depletion was recorded. In reflecting step, evaluation was conducted to measure the success of student learning outcomes due to implementing reciprocal learning in environmental education course. In cycle 1 and 2 the student learning outcomes connected with environmental problem and its solutions especially for the air pollution, urban problems, mangrove forest damage, coastal erosion, and ozone depletion reached 60.1% and 81.2%. Because of percentage of student learning outcomes in cycle 2 has been more than the target, so this research was stopped in cycle 2.

**Conclusion**

It can be concluded that that implementation of reciprocal learning in environmental education course can improve student learning outcomes for 35 students at social science education study program in Universitas Negeri Jakarta in Jakarta in Indonesia. It is expected that reciprocal learning can also be applied in other courses related to environmental issues in order to have environmental conservation leading to sustainability development in Indonesia.

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References


