

Implementation of Collaborative Learning in Chemistry Learning based on SETS (Science, Environment, Technology and Society) on Chemistry Learning Motivation and Critical Thinking Ability of High School Students

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ABSTRACT

Chemistry learning is attempted to activate students in every aspect of class activities. One of the efforts made to involve the participation of students is by collaborative SETS-based chemistry learning. The objectives of this study were (1) to find out whether there was a difference in learning motivation between students who took SETS-based chemistry learning collaboratively and students who did not participate in collaborative SETS-based chemistry learning if their initial knowledge was statistically controlled, (2) knowing there was a whether or not there are differences in the motivation to learn chemistry in students before and after participating in SETS-based chemistry learning collaboratively, and (3) knowing whether there are differences in critical thinking skills between students who take SETS-based chemistry learning collaboratively with students who do not participate in chemistry-based learning SETS collaboratively.

This research is a quasi-experimental study with a non-equivalent control group design. The instruments used for data collection in this study included the Chemistry Learning Motivation Questionnaire (AMBK) and Critical Thinking Ability Questions (SKBK) on electrolyte and non-electrolyte solution material. The data obtained were then analyzed statistically using the SPSS program. The results of the analysis showed that there was no difference in learning motivation for chemistry between students after implementing SETS-based chemistry learning collaboratively and students who used a scientific approach to electrolyte and non-electrolyte solution material. The motivation to learn chemistry of students after applying experienced a significant increase when compared between before and after collaboratively applied SETS-based chemistry learning. The results of the analysis of critical thinking skills show that there are differences in critical thinking skills between students who take SETS-based chemistry learning collaboratively with scientific classes, when the initial knowledge is statistically controlled, the effect of SETS is 13%.

The outcome of this research includes the dissemination of research articles at the ICRIEMS FMIPA UNY 2020 international seminar entitled The role of collaborative learning based STSE: Effect on students' motivation, submitted in an international journal indexed by Scopus, namely the Eurasian Journal of Educational Research with the title Fostering students' critical thinking skills through the use of collaborative learning based on STSE on acid-based chemistry, submitted in the Journal of Engineering Education Transformation with the title STSE Collaborative Learning: Fostering Students' Learning Motivation on Electrolyte Non-Electrolyte Chemistry Unit and presented at the ICERI Seminar LPPM UNY 2020 with title Fostering students' critical thinking skills in chemistry through Science, Technology, Society, and Environment (STSE) collaborative learning. Therefore, the target outcome in this study has been met.

Kata Kunci: SETS, collaborative learning, critical thinking, learning motivation