



A Teaching Material Based on Science, Environment, Technology, and Society to Improve Student's Critical Thinking Skills: Synchronous and Asynchronous Learning During Covid-19 Pandemic

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ABSTRACT

Student's critical thinking has not been maximally train in learning, learning activities are only memorizing demands of passing the assessment. Students are less understand, build, and criticize arguments about a problem, especially in science learning. This is the introduction for the development of teaching materials based on Science, Environment, Technology, and Society (SETS). This study aims to determine how the feasibility of science teaching materials based on SETS in ecosystem materials to improve the critical thinking skills of grade 5 students. This type of research is research and development (Research and Development) with a 4D model. This research was conducted online using Microsoft Teams which was carried out synchronously and asynchronously due to the Covid-19 pandemic. The data collection technique is the expert validation stage, the implementation of learning observation sheets, critical thinking tests (pretest and posttest), and student response questionnaires and then analyzed using quantitative and descriptive techniques. The results show that: (1) teaching materials were in the feasible category with an average of 3.4, (2) practical based on observations of the implementation of learning with an average of 93.7 and the categories are good, and 95% of the student activity was active, (3) effective based on the acquisition of N-gain on the critical thinking test is 0.77 (high category), and the student response questionnaire that is 97% very good category. This teaching material based on SETS is expected to improve students' critical thinking skills, in this study students can be categorized as having high critical thinking skills.

INTRODUCTION

The massive use and development of information communication technology have changed the lifestyle of humans, the demands of doing something fast and satisfying results make people have to work smartly in solving problems, including in the field of education. In Natural Sciences the process of technological development begins with this intelligent thinking. Science is a human effort to think about something that occurs in the universe with tested thinking and reasoning, according to procedures to generate logical and measurable conclusions. Natural Science learning in SD is aimed at developing potential in students by facilitating students with problems that they want to solve, motivating students to curiosity, developing reasoning skills through asking questions and the desire to find evidence for answers to natural phenomena that occur, and developing scientific ways of thinking (Susanto, 2016). Therefore, teachers must pay attention to important aspects by involving students actively in learning activities under everyday life and solving problems. Based on some of these opinions, models teaching science that has been implemented since the beginning until now is still conventional or teacher centered, where the delivery system is dominated by teachers, and the communication process is one-way (Muakhirin, 2014).

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