Education for Sustainable Development (ESD): Analysis of System Thinking Competencies of Primary School Learners

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ABSTRACT

Objective: Sustainable Development Goals (SDGs) is a 2030 agenda comprised of 17 goals. One of these goals, the fourth, pertains to Quality Education and includes indicator 4.7, Education for Sustainable Development (ESD), as one of its achievements. The implementation of ESD in education targets the instillation of systems thinking competencies within learning objectives. Consequently, students are expected to possess systems thinking competencies as a direct outcome of the learning process. The purpose of the research is to find out how good the system thinking competence of students in elementary schools is. **Method:** This study employs descriptive quantitative methods, analyzing 15 tested items to assess system thinking competencies. The analysis of competency in system thinking involved 65 sixth-grade students at Elementary School 1 Sukaraja. Data collected was analyzed using the Rasch model via the Winstep application. **Results:** The analysis of the data obtained revealed a notably low interaction between the items and the student's responses, with Cronbach Alpha producing a logit of 0.34. This suggests that students have limited ability to engage with complex systems, as evidenced by the logit number of -0.8. **Novelty:** The development of systems thinking competency in elementary school students must be continually monitored and fostered as an essential aspect of applying ESD principles to real-life issues to ensure a sustainable future. This is based on an analysis of the data obtained regarding the long-term impact of such an approach on the students' problem-solving abilities.

INTRODUCTION

Sustainable Development Goals (SDGs) were declared by the United Nations (UN) as a follow-up to the conclusion of the Millennium Development Goals (MDGs) (UNESCO, 2017). The goals provide a comprehensive framework for sustainable development efforts worldwide, with a focus on generating positive social, economic, and environmental outcomes for present and future generations (Shulla et al., 2020), and designate UNESCO as the primary organization responsible for overseeing the implementation of Chapter 36 of Agenda 21 (UNESCO, 2019). The 17 goals of the SDGs are transformative, inclusive, and universal, aimed at addressing the challenges that hinder sustainable development (UNESCO, 2018). This objective aims to tackle a worldwide issue that is paramount to human existence to ensure the long-term habitability of the planet (UNESCO, 2018).

The SDGs adhere to the principle of inclusivity, ensuring that all members of society, both in developed and developing countries, have a crucial role in realizing global goals. No individual or group must be left behind in this pursuit (Glavic, 2020). The goals of the SDGs are inseparable from the world of education, and this is evidenced in the fourth goal, "Quality Education," which contains indicator 4.7 on Education for Sustainable Development (ESD) (UNESCO, 2019). ESD is a crucial metric for achieving the SDG objectives since education can aid in all aspects. It is attaining and improving

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