

Potential Implementation of Education for Sustainable Development (ESD) on Digestive System Materials in Junior High School

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Abstract

Abstract: This study aims to analyze the potential of Education for Sustainable Development (ESD) in science learning in junior high school Digestive System material. This research is a type of field research at SMP Negeri 2 Tulis Batang Regency with a descriptive qualitative method. Data collection techniques using observation and interviews. 75% of respondents did not know the term ESD, but it turned out that they had implemented the ESD concept in the learning process in their respective maps. From the results of the interview, it was found that 100% of teachers agreed that the concept of ESD has great potential to be implemented in learning Digestive System science. With the title of Adiwiyata school, ESD-oriented learning will further strengthen the principle of sustainable living through the world of education, which is integrative.

Keywords: Potency, ESD, Digestion

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1. INTRODUCTION

In the era of globalization and rapid technological development, the world is faced with a variety of complex challenges that require innovative and sustainable solutions (Hadi et al., 2023; Jaya et al., 2023). Issues such as climate change, environmental degradation, social injustice, and economic instability demand a paradigm shift in various aspects of life, including education. Education has a central role in preparing the younger generation to face and overcome these challenges in a wise and sustainable way (Shofia Rohmah et al., 2023).

Education is an important way to improve development in terms of the economic sector, education, infrastructure, and sustainable development values. Development in this case is the development of students' mindsets as educational subjects who are prepared for the future life. In the implementation of the Independent Curriculum, the implementation of *Education for Sustainable Development* (ESD) is important in preparing the young generation with the necessary understanding and skills in building a sustainable future (Rahmawati et al., 2021; Vioeza et al., 2023).

All aspects of intelligence in educational goals are needed to harmonize economic, socio-

cultural, and environmental aspects in managing and utilizing natural resources. Indonesia's human resource development must be considered as the core of sustainable development. The instillation of sustainable development values in Indonesia needs to be anticipated and responded to early to face the challenges of the times (Ministry of National Education, 2010).

ESD will provide the ability to equip students with an understanding and application of a sustainable lifestyle from an early age. The Independent Curriculum also provides a valuable opportunity to integrate ESD and support the formation of a generation that cares about sustainability. Vechta University in Germany encourages their teaching staff to demonstrate competence in the field of ESD. Staff are provided with two-year training using the "A Rounder Sense of Purpose" competency model as a guide (Scherak & Rieckmann, 2020).

2. METHOD

The type of research conducted is *field research* or field research with a descriptive qualitative method. The descriptive method aims to see a picture of a certain condition or symptom. The sampling technique used in this study is random sampling with teachers and principals, to

represent the potential implementation of ESD in Digestive System Materials at SMP Negeri 2 Tulis Batang Regency.

The data collection techniques in this study are observation and interviews. Observations were made by analyzing the science learning tools used. Meanwhile, interviews with science teachers, deputy principals and the school curriculum development team were conducted to see the potential implementation of ESD in science learning.

Data analysis is carried out using descriptive analysis techniques, namely data analysis techniques that describe and analyze the results that are the focus of the research. The data analysis technique used is the Miles and Huberman interactive model, namely data collection, data reduction, data presentation and conclusion drawn.

3. RESULTS AND DISCUSSION

The results of this study describe the potential implementation of ESD in digestive system materials. Based on the results of interviews with science teachers and deputy principals as well as the curriculum development team at SMP Negeri 2 Tulis, it is known that only 1 person has heard the term ESD from social media. But after explaining ESD, it turns out that the ESD concept has been implemented but just did not understand the theory. From the results of the interviews, all respondents agreed that the concept of ESD can be integrated in learning.

The potential of ESD implementation in science learning, especially the Digestive System material, was stated by Mrs. "SK" as a science teacher with the statement:

"I have just heard the term ESD, but actually we are used to implementing it in learning. ESD in the Digestive System material is expected to make students more selective in consuming various types of food and continue to be implemented in daily life. With a good diet, the child's health condition will be healthier".

More or less the same thing was conveyed by the Deputy Principal of Mrs. "KB" by saying: *"I have heard the term ESD from social media. We usually carry out this concept because we are an Adiwiyata school, and in my opinion it can be integrated in science learning related to the digestive system. This concept is expected to motivate students to maintain the health of their organs with self-awareness to maintain a healthy*

life. I also plan to apply it in the subjects I am taught".

Mr. "SY" as part of the curriculum also stated the same thing. The following is what Mr. "SY" said:

"Even though we are new to the concept of ESD, we are used to integrating it in learning. Digestive System materials related to the environment are also suitable for this system. Students are expected to be able to maintain their health by paying attention to environmental aspects".

Meanwhile, Mr. "SP" in addition to the curriculum development team as well as the head of the Adiwiyata team stated that:

"The ESD concept that I just heard really inspires teachers as facilitators to invite students to integrate sustainable life. This also encourages teachers to look for new sources of knowledge so that they can apply it in the subjects they are taught."

Based on the results of the study, all respondents agreed on the integration of the ESD concept in science learning, especially Digestive System material. ESD is defined as education that has a purpose, namely: (1) building to meet the needs of current generations without sacrificing the ability of future generations to meet their own needs, (2) improving the quality of human life while remaining within the limits of the capabilities of ecosystems that support life, and (3) providing benefits to all creatures on earth, both humans and ecosystems, both now and in the future (Ministry of National Education, 2010).

In 2021, Indonesia was reported to be the largest producer of food waste in ASEAN, which was 20.9 million tons/year with an average of 77 kg/capita/year. Therefore, optimizing the use of food resources is crucial to improve public welfare and health because cognitive impairment can be exacerbated by insufficient food intake (FAO, 2021; Oluwagbemigun et al., 2022). Learning materials about the human digestive system have great potential to become a relevant platform in the ESD approach. A deep understanding of how the human body interacts with its environment including how food is processed and absorbed is not only important for individual health, but also for understanding the impact of humans on the environment. This is in accordance with one of the science learning outcomes of phase D junior high school students in the Independent Curriculum, namely: At the end of phase D, students are able to conduct an analysis to find the relationship between organ

systems and their functions as well as abnormalities or disorders that appear in the digestive organ system (Ministry of Education and Culture, 2024).

ESD-based learning will encourage students to analyze sustainability issues in depth, evaluate alternative solutions, and make the right decisions (Purnamasari & Nurawaliyah, 2023). They are trained to analyze sustainability issues related to the human digestive system in depth, evaluate various perspectives, and make appropriate conclusions. These skills are essential for preparing students for global challenges (Jaya et al., 2023).

ESD is an effort to equip individuals, communities, groups, the business world, and governments to live and act sustainably by providing them with an understanding of the interconnectedness between food, economic, environmental and social issues. Many western countries have implemented ESD, one of which is Germany. There, ESD contributes to transforming the education system as a whole by encouraging a learning process directed to jointly build a sustainable future (Andriani & Nugroho, 2023; Holst et al., 2020).

SMP Negeri 2 Tulis Batang Regency is one of the public schools in Batang Regency which is also an Adiwiyata school at the Central Java Province level in 2019. Students there are accustomed to implementing a clean and healthy environmental culture, by applying the 3R principle (*reduce, reuse, recycle*) to minimize waste and get used to bringing their own eating and drinking utensils when snacking in the canteen. By implementing ESD in learning Digestive System material, it is hoped that it will be able to optimize the concept of ESD for sustainable living through education in schools.

4. CONCLUSION

From the results of the discussion, it can be concluded that there are still many teachers who are unfamiliar with the term ESD even though it turns out that some have integrated it in learning, without knowing that it is ESD. SMP Negeri 2 Tulis, which is an Adiwiyata school at the provincial level, has great potential for the implementation of ESD in the learning process, especially in the material of the Digestive System so that it is expected to be able to encourage sustainable life through education at school.

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