

Sustainable Development and its Implications for Student Welfare

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Abstract: *This research examines the relationship between sustainable development practices in educational institutions and their impact on student welfare. Using a qualitative approach through interviews and observations in five secondary schools, this study identifies that the implementation of sustainable principles in school design, curriculum, and daily operations correlates positively with improved physical and mental well-being of students. The findings indicate that learning environments that apply sustainability principles create an atmosphere that supports students' socio-emotional development, increases environmental awareness, and facilitates effective learning processes. This study recommends further integration of sustainable practices in the education system as a strategy to improve overall student welfare.*

Keywords: *Sustainable development, student welfare, school design, environmental education, effective learning*

INTRODUCTION

Sustainable development has become a primary focus across various sectors, including education. This concept refers to development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Brundtland, 1987). In the context of education, sustainable development is not only about managing physical resources wisely but also creating a learning environment that supports the holistic development of students. Student welfare is one important aspect that must be considered in the implementation of sustainable development in the education sector. This includes physical health, psychological well-being, and social development of students. According to Samdal et al. (2017), school environments designed with sustainability principles can significantly contribute to improving student welfare.

This study aims to analyze how sustainable development practices in educational institutions impact student welfare. The study identifies sustainable development practices already implemented in secondary schools and examines their implications for various aspects of student welfare.

LITERATURE REVIEW

Sustainable development in education involves three main pillars: environmental, social, and economic sustainability. Tilbury (2011) states that education for sustainable development integrates the core values of sustainability into all aspects of learning. This includes changes in curriculum content, teaching methodologies, and the physical school environment. Regarding the physical environment of schools, research by Barrett et al. (2019) shows that school designs that incorporate sustainability aspects such as natural lighting, good air circulation, and the use

of environmentally friendly materials correlate with improved students' physical health and reduced absenteeism. Furthermore, Zhang and Cooke (2020) found that schools with adequate green spaces provide students opportunities to interact with nature, which positively impacts their mental health.

From a curriculum perspective, integrating sustainability concepts into learning also has positive effects. Research by Evans et al. (2018) revealed that students exposed to environmental education showed increased ecological awareness and pro-environmental behavior. This not only contributes to environmental sustainability but also fosters a sense of responsibility and collective identity among students. The social aspect of sustainable development in schools also plays a crucial role in student welfare. According to Dymont and Bell (2016), practices such as school gardening and nature-based learning enhance social skills, teamwork, and a sense of belonging among students. Additionally, these approaches facilitate social inclusion and reduce disparities among different student groups. The economic dimension of sustainable development in schools involves responsible financial and entrepreneurial education. Research by Leicht et al. (2018) demonstrates that such education prepares students to make ethical and sustainable economic decisions while equipping them with skills needed for the future.

RESEARCH METHODS

This study uses a qualitative approach to explore how sustainable development practices in schools affect student well-being. Five secondary schools in Indonesia were selected as research samples, with selection criteria including variation in school size, location (urban and rural), and the level of implementation of sustainable practices. Semi-structured interviews were conducted with 15 school administrators, 25 teachers, and 50 students to obtain diverse perspectives on sustainable practices in schools and their impact on student well-being. The interviews lasted 45-60 minutes and were recorded with participant consent.

Participant observation was conducted within the school environment over a three-month period to observe the implementation of sustainable development practices and student interactions with that environment. The observation focused on physical facilities, learning activities, and social dynamics in the schools. Document analysis was carried out on school policies, lesson plans, and documentation of programs related to sustainability to understand the schools' formal approaches to sustainable development. A student well-being survey was administered to 250 students from the five sample schools to measure their levels of physical, mental, and social well-being. The collected data were analyzed using thematic analysis to identify emerging patterns and main themes. Data triangulation was conducted to ensure the validity and reliability of the research findings.

RESULTS AND DISCUSSION

Physical School Design and Student Health

Schools that adopt sustainable design features, such as the use of natural lighting, good ventilation, and environmentally friendly materials, show lower student absenteeism due to illness. As revealed by a teacher, students in schools with good air circulation appear more energetic and focused during lessons (Teacher Interview 7, 2024). Observation data also show that classrooms with access to natural lighting facilitate better student concentration compared to classrooms relying entirely on artificial lighting. Schools with sufficient green spaces provide opportunities for students to rest and refresh their minds. According to Kaplan (2001), interaction with natural environments can reduce mental fatigue and improve psychological

well-being. This is reflected in a student's statement mentioning that access to the school garden helps them cope with academic stress (Student Interview 23, 2024).

Sustainable Curriculum and Student Development

The integration of sustainability concepts into the curriculum correlates with increased environmental awareness and responsible behavior among students. Schools implementing project-based learning related to environmental issues report increased student engagement and a stronger sense of ownership towards the school environment. One administrator stated that the school garden project not only teaches sustainability but also enhances students' cooperation and leadership skills (Administrator Interview 3, 2024). Educational programs integrating social aspects of sustainability, such as social justice and global responsibility, broaden students' perspectives and develop empathy. Students participating in such programs demonstrate a better understanding of global issues and motivation to contribute positively to society.

School Operational Practices

Schools that implement sustainable operational practices such as waste management, energy conservation, and sourcing local food provide opportunities for students to directly practice sustainable lifestyles. Observations show that student involvement in initiatives like composting and recycling programs increases their sense of responsibility and self-confidence. School meal programs prioritizing healthy and local foods positively impact students' physical health. As found by Oostindjer et al. (2016), such programs not only improve student nutrition but also teach about sustainable food systems. Data from the well-being survey indicate higher energy levels and concentration among students in schools with sustainable meal programs.

Community Involvement and Social Capital

Community involvement in school sustainability initiatives strengthens social capital and fosters a sense of belonging. Schools collaborating with local communities on sustainability projects report increased social cohesion and support for students. One student mentioned that participation in community-based sustainability projects made them feel more connected to their surroundings and gave a greater purpose to their education (Student Interview 42, 2024). Social networks formed through sustainability initiatives also serve as support systems for students. According to well-being survey analysis, students involved in sustainability groups or clubs demonstrate higher levels of psychological well-being compared to those not involved.

Challenges and Limitations

Despite the clear benefits, the implementation of sustainable development in schools faces several challenges. Limitations in financial and technical resources often become major obstacles in adopting sustainable practices. Additionally, the lack of training and support for teachers to integrate sustainability concepts into learning is also a significant challenge. Accessibility gaps are also identified, where schools in low-income areas face more barriers in implementing sustainable practices. This raises concerns about equity in the distribution of the benefits of sustainable development in the education sector.

Conclusion

This study confirms that sustainable development practices in educational institutions have significant positive implications for student well-being. The findings show that a sustainable learning environment supports students' physical health, psychological well-being, and social development. School designs that consider sustainability aspects create a physical environment conducive to learning and health. Integration of sustainability concepts in the curriculum develops environmental awareness and critical skills needed for the future.

Sustainable operational practices provide opportunities for students to develop responsible lifestyles, while community involvement strengthens social capital and a sense of belonging.

Based on these findings, it is recommended that education policymakers consider sustainable development as a strategy to improve student well-being. Investment in sustainable school design, curriculum development integrating sustainability concepts, and support for sustainable school operational practices can yield long-term benefits for students and society. Further research is needed to explore effective strategies to overcome implementation challenges and ensure equity in sustainable development in the education sector. Additionally, longitudinal studies would be valuable to understand the long-term impact of sustainable education on student success and well-being after graduation.

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