

## Curriculum Management as a Strategy in Realizing Sustainable Education

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### Abstract

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Sustainable education is an essential approach in both national and global development, as it equips individuals with the knowledge, skills, and values required to address global challenges such as climate change, poverty, and inequality. In the context of education, the curriculum serves as a strategic instrument that not only regulates the content and objectives of learning but also determines the direction of character formation and competency development of students. However, gaps often occur between the curriculum being taught and the needs of society as well as the demands of the labor market, resulting in graduates who are frequently not fully prepared to compete optimally. Therefore, systematic, adaptive, and relevant curriculum management is required. This article aims to analyze the role of curriculum management in realizing sustainable education through a literature study. The findings indicate that curriculum management significantly contributes to improving the quality of learning, fostering collaboration, and preparing graduates to be highly competitive while maintaining social and environmental awareness.



## 1. Introduction

Continuous education is a crucial agenda in the effort to build a better future, both in national and global contexts. Education not only serves as a means of knowledge transfer but also as a fundamental foundation for improving the quality of human resources who possess knowledge, skills, and values relevant to the needs of the times. In the era of globalization and the Industrial Revolution 4.0, sustainable education plays a central role in addressing global challenges such as climate change, poverty, inequality, and the constantly evolving demands of the workforce. Furthermore, sustainable education is expected to equip individuals to make responsible decisions, contribute to economic innovation, and maintain a balance between the needs of the present and future generations. Therefore, the development of education cannot be separated from the effort to design a system that is adaptive, inclusive, and relevant to social and economic realities.

One of the most important components in achieving sustainable education is the curriculum. The curriculum functions as an educational roadmap that guides all parties in the learning process (Mustafa et al., 2024). Conceptually, a curriculum is a set of plans and arrangements regarding the goals, content, learning materials, and teaching methods used to achieve specific educational objectives. In practice, the curriculum has a strategic role not only as a medium for transferring knowledge and skills but also as a tool for selecting, developing, and preserving beneficial values for students. A good curriculum should be responsive to contemporary developments, reflect local cultural values, and be able to accommodate the needs of society and the demands of the workforce.

However, one of the major challenges facing the world of education is the gap between the curriculum implemented in schools or universities and the real needs of society and industry. The material taught is often not aligned with the technical skills (hard skills) or interpersonal skills (soft skills) needed in the field. As a result, graduates find it difficult to compete in the job market and even face obstacles in contributing effectively to society. This gap signifies the need for curriculum management that is not only administrative but also visionary, adaptive, and needs-based.

Curriculum management is essentially a systematic process that includes curriculum planning, organization, implementation, and evaluation. According to Neliwati et al. (2023), curriculum management is an effort to ensure the smooth achievement of teaching goals and improve the quality of the teaching and learning interaction. Through a management approach, the curriculum is not only seen as a document but as a dynamic instrument that can be changed, developed, and adjusted according to social, technological, and economic developments. Thus, curriculum management plays an important role in ensuring that education not only produces academically intelligent graduates but also those who are character-driven, competent, and ready to face global challenges.

Furthermore, curriculum management that is integrated with the principles of sustainable education plays a crucial role. This principle emphasizes that education does not merely develop cognitive aspects but also builds environmental awareness, social responsibility, and economic capability (Hadjichambis & Paraskeva-Hadjichamb, 2020). An adaptively managed curriculum must be able to instill

sustainability values in students so that they can make wise and responsible choices in their personal and social lives. This approach requires collaboration among various parties, including teachers, principals, parents, and the community, to create synergy in curriculum development and implementation.

Therefore, the urgency of this study on curriculum management in the context of sustainable education is highly significant. This article aims to explain how curriculum management can contribute to creating responsive, inclusive, and competitive education. Additionally, it analyzes the various challenges faced and offers strategies to make curriculum management a primary instrument for realizing quality sustainable education.

## 2. Literature Review

The curriculum holds a strategic position in the education system as it serves as the main guide for designing the learning process. Etymologically, the term “curriculum” originates from the Latin word *curriculum*, meaning “course” or “path,” which reflects the direction to be taken in achieving educational goals. In its development, the curriculum is understood as a set of plans and arrangements that include learning objectives, content, methods, and evaluation (Dhanapala, 2021). Thus, a curriculum is not just a list of subjects but a representation of the vision, values, and educational goals that an educational institution seeks to achieve.

In the context of implementation, curriculum management or curriculum governance is a very important aspect. Effendi (2022) asserts that curriculum management is a systematic effort to ensure the smooth achievement of teaching

goals and improve the quality of the teaching and learning interaction. This process involves interconnected planning, implementation, and evaluation to ensure the curriculum remains relevant and effective. According to Nurfaisal et al. (2024), the effectiveness of curriculum management highly depends on the synergy among teachers, principals, and the community in developing and implementing a quality curriculum.

Several studies highlight the close relationship between curriculum management and sustainable education. Suwarni (2023) states that curriculum development must be done continuously to always be in line with the needs of society and the challenges of the times. Kabanda (2021) adds that the curriculum must be able to adapt to the dynamics of the labor market so that graduates can compete competitively. Furthermore, Bera and Mohalik (2020) emphasize the importance of utilizing information and communication technology (ICT) in education, as it can increase accessibility, flexibility, and learning quality. This is relevant to the principle of sustainable education, which demands the integration of technology into the learning process.

However, the literature also notes several challenges in curriculum management. The gap between the curriculum and the needs of society and the workforce is often a major obstacle. The traditional curriculum, which is too academically oriented, results in graduates lacking practical skills relevant to daily life and industrial demands. The lack of professional training for teachers is also a serious problem in the implementation of a sustainable curriculum. Without adequate

pedagogical competence, teachers will find it difficult to apply a student-centered learning approach that aligns with sustainability principles.

Conceptually, the literature agrees that effective curriculum management must be adaptive, inclusive, and collaborative. Adaptive means the curriculum is capable of adjusting to social, economic, and technological developments. Inclusive means every student, regardless of social background, has equal access to quality education. Meanwhile, collaborative means the involvement of various stakeholders teachers, students, parents, the community, and even the business world in designing and implementing the curriculum. Thus, the literature shows that curriculum management is a strategic key to realizing sustainable education and is an answer to increasingly complex global challenges.

### **3. Methods**

This study uses a literature review as the primary approach to analyze curriculum management in realizing sustainable education. This method was chosen because it allows the researcher to collect, examine, and synthesize various relevant scientific sources, journal articles, conference proceedings, and previous research reports. A literature review provides a strong conceptual foundation for understanding phenomena, comparing findings, and identifying knowledge gaps that still need to be addressed. The research stages begin with defining the focus of the study: curriculum management in the context of sustainable education. This focus is then narrowed down to key issues, such as the role of the curriculum in the education system, the concept and practice of curriculum management, implementation

challenges, and the relevance of the curriculum to the needs of society and the workforce. Once the focus is determined, the researcher conducts a literature search using academic databases like Google Scholar or Research Gate . The keywords used in the search include “curriculum management,” “sustainable education,” “curriculum and community needs,” and “curriculum and job market.” The inclusion criteria for the literature in this study are publications that have been published, have direct relevance to the research topic, and are published in accredited journals or recognized academic sources. Nevertheless, some classic literature with theoretical significance, such as the works. Once the literature is collected, the researcher performs a selection process by reading the abstracts and contents of the articles to ensure their suitability with the research focus.

The data obtained from the literature are then analyzed qualitatively through content analysis techniques. This process is carried out by identifying main themes, grouping findings according to categories, and comparing across different studies. This analysis aims to find patterns, similarities, differences, and relationships between the concept of curriculum management and sustainable education. In addition, the researcher critically examines the weaknesses and limitations of previous studies to uncover research gaps that form the basis of this article's contribution. With the literature review method, this study not only presents a summary of theories and empirical findings but also offers a comprehensive synthesis of how curriculum management can be optimized to achieve sustainable education. This approach is expected to provide a deep understanding and applicable

recommendations for the development of educational theory and practice in Indonesia.

## 4. Results and Discussion

### 4.1 The Relevance of Curriculum Management to Sustainable Education

The results of the literature review show that curriculum management has a central position in realizing sustainable education. The curriculum is not just a list of teaching materials but a reflection of a nation's vision and direction for development through education. In the context of sustainable education, the curriculum acts as a strategic instrument to instill values, knowledge, and skills that enable students to face global challenges such as climate change, energy crises, and social injustice. Thus, good curriculum management not only regulates the learning process in the classroom but also ensures that the educational process contributes to creating a society that is environmentally conscious, inclusive, and adaptive to the developments of the times (Grimus, 2020).

From a theoretical perspective, curriculum management is understood as a process of planning, implementation, and evaluation aimed at optimizing the curriculum's function. Importance of continuity in curriculum management, as the sustainability of this process ensures the relevance between education and social, economic, and technological dynamics. In relation to sustainable education, this relevance means the curriculum's ability to integrate environmental, social, and economic aspects into every subject (Tasdemir & Gazo, 2020). For example, science learning does not only emphasize theoretical aspects but also links them to current

ecological issues such as waste management, energy conservation, or climate change. In doing so, students not only gain academic knowledge but also moral awareness and practical skills oriented toward sustainability. The literature also asserts that the relevance of curriculum management to sustainable education can be seen through a collaborative approach. Mpuangnan and Ntombela (2024) highlight the importance of involving teachers, principals, and the community in developing a curriculum that is appropriate to the local context. This aligns with UNESCO's concept of Education for Sustainable Development (ESD) which emphasizes the connection between schools and their surrounding communities. By involving the community, the curriculum can adjust to real needs, for example, in the field of environmentally based entrepreneurship or the development of vocational skills relevant to green industries.

On the other hand, the integration of sustainable education into curriculum management also faces complex obstacles. One of the main challenges is the gap between the curriculum taught in schools and the demands of society and the workforce (Igwe et al., 2021). Many studies report that school and university graduates are often ill-prepared to face job competition due to a lack of mastery of soft skills such as communication, collaboration, and leadership, as well as hard skills that align with technological advancements, this gap is a result of a lack of synchronization between the world of education and the world of industry. Furthermore, another constraint found is the limited capacity of teachers to apply the principles of sustainable education. Not all teachers have a deep understanding of integrating environmental or social issues into learning. The lack of continuous professional training and development often causes teachers to revert to conventional learning

patterns that only emphasize cognitive aspects. In contrast, sustainable education demands a more holistic approach, including affective and psychomotor dimensions.

Nevertheless, the literature also offers solutions that can strengthen the relevance of curriculum management to sustainable education. First, there is a need for a flexible and adaptive curriculum design. The curriculum should not be rigid but must be able to change with the times. Second, the integration of information and communication technology (ICT) is a matter that cannot be ignored. The use of technology can broaden access to education, enrich learning methods, and present simulations relevant to sustainability issues (Ekins, 2024). Third, strengthening teacher capacity through continuous training programs is a determining factor in the successful implementation of a sustainability-based curriculum. Thus, the results of the literature review indicate that curriculum management has a high relevance to sustainable education. However, to ensure success, efforts in adaptation, collaboration, and strengthening human resource capacity are needed. This will make the curriculum not only an educational roadmap but also a transformative instrument for producing a generation that is competitive and also responsible for environmental, social, and economic sustainability.

## **4.2 Practical Implications of Curriculum Management for the World of Education and Society**

In addition to its theoretical relevance, curriculum management integrated with the principles of sustainable education has broad practical implications for both the world of education and society. One of the most tangible implications is the improvement in the quality of human resources. An effectively managed curriculum

allows students to acquire skills relevant to the 21st century, such as problem-solving, critical thinking, digital literacy, and ecological awareness (González-Pérez & Ramírez-Montoya, 2022). With these skills, graduates are not only ready to work in the formal sector but also have the capacity to create jobs through innovation and sustainability-based entrepreneurship.

Another implication can be seen in the shift in the learning paradigm. If learning previously tended to be teacher-centered, curriculum management based on sustainable education encourages a shift towards student-centered learning. Students are encouraged to actively explore real-world problems in their environment, for example, through projects on waste management, water conservation, or organic farming (Nansen, 2024). This approach not only enhances academic understanding but also builds a character that cares for the environment and society. For the world of education, another practical implication is the increased relevance of schools or universities to the workforce. A curriculum designed with input from the industrial world allows graduates to be better prepared to meet market needs. For example, in the green economy era, industries need a workforce with an understanding of environmentally friendly technology, energy efficiency, and waste management. If the curriculum successfully accommodates these needs, there will be an alignment between educational outputs and market demand.

From a societal perspective, curriculum management based on sustainable education can strengthen community involvement in the educational process. When the community is involved in curriculum planning, the school no longer stands as a separate institution but becomes an integral part of the community (Edwards-

Fapohunda, 2024). Community involvement can take the form of collaboration on environmental projects, providing learning facilities, or participating in local entrepreneurship programs. This not only improves the quality of education but also strengthens social cohesion and accelerates community-based development.

The practical implications also touch upon the aspect of policy. The government can use the findings from the literature on curriculum management to formulate more responsive educational policies. For example, through regulations that encourage the integration of sustainable education into the national curriculum, increased investment in teacher training, and strengthened cooperation between schools and industry. With supportive policies, the implementation of sustainability-based curriculum management can run more effectively and systematically (Bodkin & Hakimi, 2020). However, it should be noted that these practical implications also face a number of challenges. Limited funding, resistance to change, and gaps in educational infrastructure are still major obstacles. In many regions, school facilities are not yet adequate to support project-based learning or the use of technology. Furthermore, not all communities have the same awareness of the importance of sustainable education, so consistent efforts in socialization and education are needed.

Nevertheless, the positive potential of curriculum management based on sustainable education is far greater than the challenges. If managed well, the curriculum can become an instrument of social transformation that not only improves the quality of education but also strengthens the nation's competitiveness, creates an inclusive society, and ensures the sustainability of natural resources. Thus,

these practical implications affirm that curriculum management should not be viewed merely as an administrative task but as a strategic effort to simultaneously address the needs of education, society, and global development.

## **5. Conclusion**

This literature review confirms that curriculum management has a strategic role in realizing sustainable education. The curriculum is not merely an administrative tool that regulates the learning process but a transformative instrument that determines the direction of character development, skills, and students' awareness of sustainability issues. The relevance of curriculum management to sustainable education is evident in its ability to integrate environmental, social, and economic dimensions into learning, while also addressing global challenges such as climate crisis, inequality, and the dynamics of the workforce.

The findings from the literature show that the success of curriculum management is determined by the collaboration of various parties, from teachers, principals, and the government to the community. A curriculum that is managed adaptively, contextually, and participatively allows education to be more relevant to both local and global needs. In addition, strengthening teacher capacity, utilizing technology, and the flexibility of curriculum design are key factors to ensure that education is able to produce graduates who are competitive and have a sense of sustainability. In practice, curriculum management based on sustainable education has a positive impact on improving the quality of human resources, the relevance of

education to industrial needs, and strengthening community participation in development. However, challenges such as limited funding, infrastructure gaps, and resistance to change need to be overcome through progressive policies and multi-stakeholder collaboration. Thus, it can be concluded that curriculum management is the heart of sustainable education. If managed with a vision of sustainability, the curriculum will become a strategic means to produce a generation that is not only academically excellent but also environmentally conscious, socially resilient, and adaptive to global demands.

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