



INTERSECTION OF TEACHER EDUCATION AND SUSTAINABLE ENVIRONMENT: A FLASHLIGHT FOR DEVELOPMENT

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Abstract

This paper examines the intersection of teacher education and sustainable environment, particularly, focusing on how teacher education can serve as a fundamental tool for promoting sustainable development. Sustainability is a global concept that is trending for sometimes now. In the context of this study, sustainable environment entails the ability of people to sustain environment for future generation yet unborn; making life choices that ensure an equal, if not better, way of life for future generations. Environmental sustainability aims to improve the quality of human life without putting unnecessary strain on the earth's supporting ecosystems. This can be done by living in a way that does not waste or unnecessarily deplete natural resources. The concept of a "flashlight for development" is used to elucidate the role of teacher education in shedding light on the importance of sustainable practices. The study involves theoretical review of the existing literature. Through an in-depth analysis of existing literature, this paper argues that teacher education plays a vital role in shaping future generations to be conscious of the environment, how to manage, conserve, and sustain it and the impact of teacher education on its sustainability. The paper also discusses the advantages and challenges in incorporating sustainable environment into teacher education programmes and presents suggestions for future researches. In conclusion, this paper highlights the significant role of teacher education in promoting sustainable environment and emphasizes the need for continued efforts to integrate sustainability into teacher education programmes for all round sustainable development across the world's environment.

Keywords: Teacher education, Environment, Sustainability, Flashlight, Development

Introduction

Teacher education plays a pivotal role in shaping the future of education and sustainable development. Effective teacher education programs can foster a new generation of educators who are equipped to address the complex challenges of the 21st century. Environment and Environmental sustainability involves ability to preserve, conserve, manage and sustain environment for future generations. It is ability to improve the quality of human life without putting unnecessary strain on the earth's supporting ecosystems. To achieve this issue of environmental sustainability, education is needed to play a fundamental role. Education is key to the global integrated framework of sustainable development goals. Education is at the heart of efforts both to adapt to change and to transform the world within which we live. A quality basic education is the necessary foundation for learning throughout life in a complex and rapidly changing world (UNESCO, 2015a & b).

Education for sustainable development (ESD) is hypothesized to enable the transition to sustainable future as envisioned by the UN Sustainable Development Goals (SDGs). Teachers play crucial role in supporting the development of students' environmental knowledge and skills for responding

to environmental change. Education for sustainable development involves holistic, transformation and lifelong learning processes that aim to enhance the cognitive, social, emotional and behavioural dimensions of learning. Teacher Education for Sustainable Development is a niche innovation that empowers teachers to prepare learners to address global environmentalist challenges (Kioupi & Voulvoulis, 2022; Panula et al, 2023).

The concept of a "flashlight for development" is used to elucidate the role of teacher education in shedding light on the importance of sustainable practices and teacher education. The intersection of teacher education and sustainable environment, particularly, focusing on how teacher education can serve as a fundamental tool for promoting sustainable development. Human being is a social creature who needs complete social system to survive. There is a balance between nature and man by which every system of nature is maintained. If human being make disturbance in this cyclic process then it effects on whole nature including man therefore the development should be sustainable so that future generation can survive easily. Sustainability means long lasting or long term process. Sustainable development is ultimate goal of future oriented

society. Education plays a crucial role in the accomplishment of this goal. Education and sustainable development are interrelated as they both deal with well managed livelihood, equity and equality in society, constant economic growth and many more issues related with social up gradation. As it is well known fact that teacher is a torch-bearer who guides people to follow rules and regulations of the society and helps in the preparation of responsible citizens, if a teacher sows the seeds of sustainable development among the students, its roots will deeply penetrate in the society (Kioupi & Voulvoulis, 2022, Panula et al, 2023).

The term education for sustainable development (ESD) is now being increasingly used in the teacher education curricula at universities, where student teachers are already offered opportunities to deal with sustainable development issues during their studies. Therefore, it is crucial to regard teachers (both future and in-service) as individuals who need to acquire heuristic knowledge, competencies and capabilities that enable them to shape the future actively, on their own and with others. Thus, dealing with issues of sustainable development in teaching/learning processes requires the ability to create transformative material and methods, as well as to establish new learning cultures that take into account the freedom and responsibility of the individual. Teaching education for sustainable development is not about letting students choose the best option from existing or possible alternatives, but rather about encouraging them to invent the unimaginable. The corresponding shift in the self-image and role of teachers can hardly be overestimated (Christoforatu, 2021).

Aim and Objectives

The aim of the study is to examine teacher education and sustainable environment with emphasis on how teacher education programmes can bring about sustainable environment. To achieve this aim, the following objectives are stated:

1. To examine the concept of teacher education for sustainable development.
2. To assess the integration of education for sustainable development into teacher education.
3. To examine the challenges in incorporating sustainable environment into teacher education programmes.
4. To assess opportunities of sustainable development in teacher education
5. To evaluate teacher education for sustainable development.

Teacher Education for Sustainable Development

The following are the components of teacher education for sustainable development (Duveneck et al., 2020)

1. Environmental Awareness and Education: Integrating environmental education into teacher training programs to raise awareness about sustainability and environmental issues.
2. Inquiry-Based Learning: Encouraging teachers to adopt inquiry-based approaches that promote critical thinking, problem-solving, and creativity.
3. Interdisciplinary Learning: Fostering connections between subjects to provide a holistic understanding of sustainable development and its complexities.
4. Community Engagement and Partnerships: Building partnerships with local communities, organizations, and stakeholders to provide teachers with real-world experiences and networking opportunities.
5. Technology Integration: Leveraging technology to enhance teacher education, facilitate collaboration, and provide access to resources and information.

Implementation Strategies

The following are the implementation strategies for sustainable development:

1. Policy Reforms and Frameworks: Developing and implementing policies and frameworks that support teacher education for sustainable development.
2. Capacity Building and Professional Development: Providing teachers with ongoing capacity building and professional development opportunities to enhance their skills and knowledge.
3. Collaboration and Partnerships: Fostering collaboration and partnerships between governments, NGOs, private sector entities, and educational institutions to support teacher education initiatives.
4. Monitoring and Evaluation: Establishing robust monitoring and evaluation systems to track progress, identify challenges, and inform policy and practice.
5. Community Engagement and Ownership: Encouraging community engagement and ownership of teacher education initiatives to ensure relevance, sustainability, and impact.

Concept of Sustainable Development

Sustainable development is a multifaceted concept that seeks to balance economic, social, and environmental needs to ensure a prosperous and equitable future for all. Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Robert et al., 2005)

The decision to integrate ESD into teacher education requires a systematic expansion of the range of courses on offer. This can be done by teacher educators identifying suitable elements of knowledge and teaching/learning arrangements based on the question of how their respective subjects or subject areas can contribute to the development of competences. For example, this could be achieved by developing integrative teaching formats in which examples of social practice are examined from the perspectives of subject theory, subject teaching and educational theory (Holst and Brock, 2020, Kioupi and Voulvoulis, 2022).

Sustainable development requires a collaborative effort from governments, businesses, civil society, and individuals. The study proposes the following for implementation to minimize the identified challenges:

1. Balancing competing interests and priorities
2. Addressing power imbalances and inequalities
3. Managing trade-offs between economic, social, and environmental goals
4. Ensuring policy coherence and coordination
5. Mobilizing resources and financing

Key Principles of Sustainable Development

Sustainable development recognizes the interconnectedness of economic, social, and environmental systems; considers the well-being of people, planet, and prosperity simultaneously; prioritizes the needs of future generations alongside those of the present; aims to reduce poverty, inequality, and social injustice; and encourage stakeholder engagement, cooperation, and collective action.

Pillars of Sustainable Development

1. **Economic Sustainability:** Promotes economic growth, poverty reduction, and job creation while protecting the environment and natural resources.
2. **Social Sustainability:** Focuses on human well-being, social justice, and equality, ensuring access to education, healthcare, and basic services.

3. **Environmental Sustainability:** Aims to conserve natural resources, reduce pollution, and protect biodiversity, ecosystems, and the climate.

Environmental Challenges that Hinder Sustainable Development

The study identifies the following environmental challenges:

- Unfavourable climate - extreme temperatures, etc
- Anthropogenic/Human Activities
- Massive deforestation: Associated with low-income households who use wood as the primary source of energy for cooking.
- Intensive extensive cultivation,
- Overgrazing,
- Bush burning,
- Depletion of natural resources – mining, lumbering, fishery
- Erosion
- Unsustainable water management/overuse of water.

Advantages of Environmental Sustainability

Sustainable development offers numerous advantages to society, ensuring a prosperous and equitable future for all. Some of the key advantages include:

- Protected ecosystems
- Less pollution in the cities results in better respiratory health for all.
- Halt or reverse the effects of global warming.

Sustainable development lead to better air and water quality, reduced pollution, and increased access to healthcare services; provide opportunities for education and skills development, particularly in fields related to sustainability and environmental management; and help reduce social inequalities by providing access to resources, services, and opportunities for marginalized communities.

Sustainable development offers numerous advantages to tertiary education, enhancing the quality of education, research, and campus operations: Sustainable development encourages interdisciplinary approaches, fostering connections between subjects and promoting holistic understanding; provides advantages for students to work on real-world problems, developing practical skills and applying theoretical knowledge; and encourages critical thinking, creativity, and problem-solving which are essential skills for the 21st



century. Sustainable development presents innovative research advantages, driving advancements in fields like renewable energy, sustainable agriculture, and eco-friendly technologies; fosters collaboration between academia, industry, government, and civil society, leading to new partnerships and research initiatives; and promotes knowledge sharing and dissemination, ensuring that research findings are translated into practical solutions (Duveneck et al., 2020, Kioupi and Voulvoulis, 2022).).

Sustainable development is a complex and multifaceted concept that requires a holistic and integrated approach. By understanding its principles, pillars, and goals, a more equitable, prosperous, and environmentally conscious future for all can be created. Also creating environmental awareness, inquiry-based learning, and community engagement into teacher education programs, this can foster a new generation of educators who are equipped to drive positive change and promote sustainable development. (Singer-Brodowsky et al., 2019; Waltner et al., 2018; Holst and Brock, 2020; Holst and Von-Seggern, 2020).

By integrating sustainable development into tertiary education, institutions can enhance the quality of education, research, and campus operations, while promoting social responsibility and environmental stewardship. Sustainable development encourages campuses to reduce their environmental footprint, implementing energy-efficient practices, reducing waste, and promoting sustainable transportation; lead to cost savings through energy efficiency, water conservation, and waste reduction; and campuses that prioritize sustainable development can enhance their reputation, attracting students, faculty, and staff who share these values ((Christoforatu, 2021).

Conclusion

The conceptual approach outlined in the study suggests that the implementation of education sustainable development in teacher education should be designed as an overall process. For the successful integration of this cross-sectional task, it makes sense to involve as many stakeholders as possible from the outset in the preparation of the various concepts, and the development and implementation of content-related and organizational measures, and to support them with research. In this way, it can be ensured that education for sustainable development is not reduced to combining and labeling individual activities, but rather refers to a systems-based approach to sustainable development that has a lasting effect on all levels of teacher education and demonstrably promotes the professionalization of teachers and

teacher educators. The efforts involved are enormous: they imply nothing less than a paradigm shift in teacher education. However, this is indispensable if the stakeholders take Agenda 2030 and Target 4.7 of the sustainable development goals (SDGs) in particular seriously and apply them to every nation of the world. The study recommends that researches should also be conducted into: (1) the challenges facing teachers, education administrators and political decision makers who are dedicated to the systematic integration of ESD into teacher education processes. By unraveling the complexities of teacher education and adopting holistic, science-driven approaches, creating a future where teacher education is bloom, where sustainable environment is in harmony with nature, and where sustainable development is guaranteed.

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