

Education for Sustainable Development: A Social Transformer for meeting Sustainability Needs

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Abstract

Sustainable Development Goals are social transformative goals for a sustainable future. Education forms the basis for the implementation of principles of Sustainable Development. So, Education for Sustainable Development plays a vital role in raising ecological awareness, rational treatment of the environment and a consciousness to preserve the benefits of nature. It includes a wide array of parameters including environmental factors along with social and cultural factors, which can only be attained by creating awareness and empowering learners to take responsibility which can be brought through a change in education. Development education is needed to address inequalities and social injustice embedded within the society. It mainly focuses on global equity, justice and sustainability issues. The key goals of ESD are holistic education, creating stakeholders' awareness, participation and cooperation of all and building capacity of the stakeholders. This inclusive Education plays a vital role in integrating the awareness of environmental factors along with socio-economic factors. In this respect, Educational Institutions play a vital role in creating this consciousness through knowledge, skill formation and training. Learners need to equip themselves to face the global challenges.

This paper provides a comprehensive review about the factors that lead to sustainable development, analysing the supportive and challenging pathways and the role of higher educational institutions to contribute to global sustainability efforts. Further it explores Education for Sustainable Development in the light of Environmental Education and Green Education. A qualitative analysis has been done based on logical reasoning to bring meaningful conclusions on the questions posed and on the corresponding literature studied. This analysis was done to explore the need of Education for Sustainable Development in such a changing scenario where creative abilities and innovative mind-set plays a vital role for tackling the global challenges and the framing of corresponding solutions.

Keywords: Sustainability, Consciousness, Holistic, Empower, Global

1. Introduction

Education for Sustainable Development took a new form in 2002, when the United Nations declared 2005–2014 as the Decade for Education for Sustainable Development (ESD). This initiative was introduced to tackle the challenges confronting sustainability and create a better future. Developmental education helps to form a social basis for the implementation of sustainable development goals and helps in developing a sustainable society.

Developing a strategy on sustainable issues have a considerable impact on humans as well as environment. The impact on humans is fostered by creating human potential through education. Human qualities are being developed through this creative education based on the principles of sustainability (Anastasia Nasibulina, 2015). While environmental education focuses on our relationship with nature, promoting conservation, preservation, and resource management, ESD takes a broader approach by integrating environmental concerns with socio-cultural and socio-political issues, such as equity, poverty, democracy, and quality of life.

ESD is a continuous process. It encourages continuous learning, fosters a deeper understanding of our environment, and builds a culture committed to valuing and safeguarding the planet. Education for Sustainable Development (ESD) was undertaken to gain knowledge, create awareness and help in capacity building. Its scope is to define the learning content and adopt it according to the level of the learner, becoming an effective tool for the development of quality education. It is accepted for giving people knowledge or skills for lifelong learning and to find solutions for environmental, economic, and social issues (Roselyn McKeown, 2002).

The goals of education include the UN Decade of Education for Sustainable Development (UNESCO, 2015) and the UN Sustainable Development Goals, which ensures that all learners must acquire knowledge, skills and competency to promote sustainable development by obtaining education, human rights, gender equality, promotion of peace, non-violence and cultural diversity (UN, 2024). The Sustainable Development Goals centers on learners obtaining knowledge and skills for sustainable development (Joanne O'Flaherty, et al., 2017). In the global context, The United Nations Sustainable Development Goals also focuses on gaining knowledge and skills for learners to achieve global sustainability. Achievement of sustainable development can come through an education system where the quality of thinking is refined, developing moral values along with personality development.

Yet, the concept of sustainable development remains a challenge. In the 2002 UN World Summit on Sustainable Development, people often face struggle with sustainability challenges unless presented through relatable stories or examples. This brings forward the importance of quality education, which not only conveys facts but encourages critical thinking, collaboration, and effective communication (Eleanor Bird, 2008).

In industrialized nations, it initially prepared individuals for the workforce, later shifting toward economic competitiveness. Today, the focus has broadened to include global citizenship, social justice, and sustainable futures. Present education is not based on collecting facts but it requires the need to analyse information and participate with others to synthesize it along with the communication of results. This transformation of Education from the past to the present will require evidence that Education for Sustainable Development (ESD) is the benchmark for quality education (Robert Laurie, et al., 2016). Evidence-based changes are needed in order to justify the changes that education for sustainable development contributes to an effective and quality education.

One of the biggest challenges of our time is to balance the preservation of the planet's resources with economic prosperity and well-being for a growing global population. Sustainable development lies at the core of this challenge. International agreements and initiatives have brought countries together to address these issues, with ESD emerging as a key resource. By empowering individuals and communities, ESD helps to navigate the complexities of sustainability, motivating collective action towards a sustainable world.

This discussion focuses on uncovering the key factors that drive the growth of sustainable education. It looks at ways how higher educational institutions play a vital role that either support or hinder the development of sustainable education. The paper centers on several objectives that highlight the inclusive growth of education as a powerful pathway to sustainability. These objectives include identifying the critical factors that promote sustainable growth in education, assessing the role of higher educational institutions in promoting sustainable education and analyzing both the positive and negative influences on the development of sustainable education.

Additionally, the study examines whether Environmental Education and Education for Sustainable Development can serve as effective tools for driving change. It also explores the connection between sustainable education and green education, questioning whether they are complement each other or represent distinct approaches to achieving sustainability. By connecting these objectives with the conservation of sustainability issues in the global context, the paper aims to shed light on how education can play a transformative role in overcoming sustainability challenges and build a fairer and more sustainable future.

2. Research Questions:

Based on the defined research objectives, we have developed the following five research questions.

- RQ1: What are the key elements that drive the growth of sustainable education, and how it shape its development with an influence on society?
- RQ2: How does higher educational institutions significantly promote sustainable education that helps to support or be a constraint, across different regions?
- RQ3: What are the key elements that act as a supportive and challenging factors influencing the growth of sustainable education, and how do they interact?
- RQ4: How do Environmental Education and Education for Sustainable Development differ from each other for bringing a change?
- RQ5: How are Sustainable Education and Green Education similar or different to attain sustainability? Do they represent same concept or are they distinct yet complementary approaches?

3. Research Methodology:

The paper employs a qualitative analysis through a literature review where the hypotheses will be formulated based upon the research questions. The research questions will guide us in framing the hypothesis. In simpler terms, the paper follows a deductive research approach, using logical reasoning to draw meaningful conclusions based on the existing theoretical framework about the transformative role on Education for sustainable Development. The sources of literature include a range of journal articles, research papers, edited volumes, and government reports.

4. Literature Review:

4.1 Key Driving Factors shaping Sustainable Education:

(Edwin, et al., 2019) found a ‘change management perspective’ to act as a driving agent motivating sustainable education. Often it has been found that self-determination of the middle-tier has become one of the most important factors advancing sustainable development in the education sector. It can be a part for improving the education system including a variety of roles involving district education officers,

mentors and teachers. Emergence of new and improved leadership roles also proved to be the vital aspect for enhancing sustainability .

Factors such as per-capita GDP, urbanization and education funding helps to promote educational attainment in the most sustainable way. Again the teacher-student ratio is also one of the factors that can help in attaining educational achievement. Training of high-quality teachers has found to be one of the major determinants that need financial investment in education. This in turn will help to promote economic as well as social development. The high-quality teachers are mostly required in those areas having poor teacher-student ratio so as to provide quality education in a sustainable manner (Lidan Yang, 2023).

Baroudi & ElSayary in their study ‘Driving transformation in higher education: Exploring the process and impact of educational innovations for sustainability through interdisciplinary studies’ found out that there is a correlation between the drivers and process of innovation which perform a significant role for driving sustainability in education. Other factors such as empowering faculty members as well as involving them in the transformation process can lead a transparent view regarding opportunities using methods of pedagogy (Sandra Baroudi, et al., 2024).

Based on the above literature, the following hypothesis can be proposed,

H1: A change management perspective significantly enhances sustainable development in education systems.

4.2. Sustainable Education and Green Education: Contrasting or Contradictory?

Sustainable education (SE) and green education (GE) are both vital in helping individuals understand and address environmental challenges. While they share a common goal of promoting environmental sustainability, they each focus on different aspects. This review will look into how SE and GE are compared, exploring whether they work together or if their approaches clash.

In the study ‘Globalization and environmental education: Looking beyond sustainable development’, stated that there lies a relationship among sustainable development, environmental thought, democracy, and education (Bob Jickling, et al., 2008). The paper can be perceived for a particular notion which reveals some contrasting views for Sustainable education and Green Education. Green Education is something that critically pertains to knowledge of sustainable development. On the other hand, sustainable education can be considered to be a part of Green Education as it will teach how education is spread throughout society to achieve the ultimate goal of enriching the societal welfare of the nation. Thus, without sustainable education green education is not possible and sustainable education without the knowledge of green education is meaningless, based on today’s century of huge population and pollution.

(Walter Leal Filho, 2011) highlights that sustainable education (SE) is more than just raising environmental awareness. It aims to empower individuals to actively contribute to create a more sustainable society, addressing critical issues like climate change, resource depletion, and social inequality.

On the other hand, The American Association of Colleges and Universities (AAC&U, 2012) in the paper Green Education: The New Frontier in Higher Education. AAC&U explains that green education focuses on fostering eco-friendly practices, minimizing environmental impact, and raising awareness about critical issues like climate change, biodiversity loss, and pollution.

However, (Walter Leal Filho, 2011) highlights that both sustainable education (SE) and green education (GE) are crucial for fostering a sustainable future. However, he points out that GE can sometimes have a narrower focus, making it less equipped to tackle the broader complexities of sustainable development.

Hence, it has been observed from the above literature that sustainable education and green education share a common goal of promoting sustainability but differ in their focus. While green education centers on environmental issues, sustainable education takes a broader approach, addressing social, economic, and environmental aspects. Therefore, it can be hypothesized that

H2: Sustainable education (SE) and green education (GE) go hand in hand, supporting each other.

4.3. Higher Educational Institutions strive to bring awareness among individuals and communities to promote sustainable development education across different regions:

Higher Educational Institutions have taken the initiative to implement Education for Sustainable Development formulated by the United Nations Education for Sustainable Goals. Higher Educational Institutions have a social responsibility to promote sustainability and to achieve sustainability at the local level. Their decisions affect the economic, social and environmental aspects. These institutions prepare learners to think critically and make decisions to apply their knowledge. They prepare students for community involvement work in order to promote Sustainable Development goals (Walter et.al. 2019).

The study by (Vaidehi Pareek, et al., 2024) highlights that Universities have taken a transformative role to address the Global Sustainability goals and to achieve an equitable society. Higher Educational Institutions undertook this initiative through teaching, research and community engagement aligned with sustainable development goals. The initiatives include sustainable practices on campus to conduct research on critical issues. Through research, universities collaborate with local and global communities to promote innovative solutions that address social needs. Institutions prepare students to address the global challenges with an understanding of sustainability while exploring the development of curriculum.

Results show that universities address the SDGs through innovative ways and enhance the sustainability efforts, so that students can make productive contributions to communities. Higher Educational Institutions highlight significant achievements in contributing to SDGs and can drive a sustainable future. (Harika Suklun , 2024) explores how Universities are raising awareness about SDGs through innovative ways and integrating the goals in their educational programs. Higher Educational Institutes have felt the need to apply educational methods and policies to integrate SDG into educational plans, development of innovative teaching approaches, research paths etc. So, a need arises to collaborate with private sectors, organisations, non-governmental organizations to align the initiatives with SDGs. The goals should be holistic and nation-wide.

Findings reveal that by raising awareness along with promotion of sustainability strategies, there is a way for the learners to go beyond higher Educational Institutions and to engage learners in activities that will contribute to sustainable development, so that they are enabled to take transformative actions. Higher Educational Institutions needs strong support from Governmental bodies. It discusses how HEIs incorporate sustainable development in their academic curriculum.

The paper by (Rodrigo Lozano,et al., 2013) is based upon declaration, initiatives designed for the institutions to adopt sustainable development education. It provides a framework for HEI to show their commitment and integrate sustainability into their curriculum. It shows the strong linkages between the HEI's commitment to sustainability and implementation by accepting a declaration or initiatives. The adoption of charter or declaration fosters a transformative SD.

Results show the implementation of sustainable development within the system and signing of declaration is done by the commitment of academic leadership. There is a strong linkage between institution's commitment to sustainability, implementation and signing of an initiative.

Hence from the literature we find that higher educational institutions play a pivotal role to create awareness among learners through innovative teaching methods and incorporating the sustainable development goals within the curriculum so that learners undertake the implementation strategies for a sustainable future. Therefore, it can be hypothesized that

H3: Higher Educational Institutions promote significant contributions for implementation of sustainable goals.

4.4. How do Environmental Education and Education for Sustainable Development differ from each other?

(Margarita Pavlova, 2013) shows that both Environmental Education (EE) and ESD act as transformative goals of education. EE is the educational process that deals with inter-relationship of humans with the environment. It is concerned with the advancement of education for knowledge, understanding, and skills to deal with environmental problems. It is an interdisciplinary problem solving approach.

ESD is required for the transformation of the society where the individuals learn the values, behaviour which is required to build a sustainable future. It is a learning process which leads individuals to take decisions to build a sustainable future.

Recent analysis shows a refined relationship between ESD and EE based on the practical experiences of the country i.e. EE and ESD are the same. But the analysis also shows, EE is a part of ESD and ESD and EE are distinct. EE and ESD are the same in the sense that there is life-long participatory learning, critical thinking, solving of problems and inclusion of social and economic issues in order to identify the similarity and difference between ESD and EE. ESD and EE are distinct in the sense that ESD focuses at the local level whereas EE focuses on protection of the environment.

Thus ESD and EE are different in their concepts and implementation among different localities and regions. They address various issues which differ in their effectiveness of implementation and complexity in addressing the issues.

The study by (Anastasia Nasibulina, 2015) addresses the implementation of ESD on the basis of environmental ethics. It is a way to form new consciousness and behaviour through which human development could be considered. ESD is a life-long learning creating ecological consciousness. The objectives of ESD are acquisition of knowledge and skills for sustainable development of the society, critical thinking, creating moral values, mindset reflecting national and global needs to maintain ecological sustainability etc. It promotes quality of life by creating environmental awareness with environmental infrastructure. It creates civic responsibility along with social values, giving solutions to educational problems like forming learning interests, independent study, interactive methods of teaching etc.

Environmental ethics is teaching the moral relationship between man and nature which is aimed to create solutions for environmental problems. It is a value system which defines the harmonious relationship between man and nature. Sustainable development will be realized when knowledge and spiritual values of mankind co-exist with the environment. So, ESD should be promoted on the basis of new values on environmental- oriented outlook and environmental ethics.

Environmental education is important through creating awareness about the ecological culture of the population, dealing with the environment in a proper way and forming a sense about the preservation of the environment (Kiyosov Sherzod Uralovich, et al., 2023). This helps in the development of financial and economic growth. Environmental Education provides the information, capabilities and vast experiences to use and manage the natural resources. This education, stresses on out-door learning activity of the

students, otherwise they will fail to face the difficulties posed by the environment. It helps to develop the communicating power of the students, critical thinking and problem solving ability.

ESD assures protection of the environment and fosters economic sustainability. It fosters knowledge, skills, understanding, values and behaviour to attain a sustainable world. It encourages active learning and undertakes innovative teaching strategies that will change student's behaviour to take an initiative to attain the goals of sustainable development. It develops skills like critical thinking, application of analysis in decision-making, making group-decisions etc.

Hence from the literature it is found that Environmental Education and Education for Sustainable Development differ in their concepts and implementation but to some extent they are the same on the basis of inclusion in the global themes based on content and teaching methods.

Therefore, it can be hypothesised that

H4: Environmental Education and Education For Sustainable Development are distinct although EE is a part of ESD.

4.5. Interaction between the key supportive and challenging factors influencing the growth of sustainable education:

Sustainable education (SE) has become a major focus for policymakers, educators, and researchers around the world, especially when it comes to integrating sustainability into educational systems. SE is essential for preparing future generations with the knowledge, skills, and values they need to tackle the challenges of sustainable development (SD). However, the growth and implementation of SE are shaped by a mix of supportive and challenging factors, each having its own impact on the educational landscape. This review looks at both the positive and negative factors that influence the development of sustainable education and how they work together.

Although supportive efforts are in place, challenges like limited funding and competing priorities can reduce their impact. For example, even when institutions have the right policies and support, a lack of financial resources or resistance to change can hold back the full implementation of sustainability programs. Additionally, a lack of awareness and understanding may prevent the effective use of new technologies, limiting their potential to enhance sustainable education.

The way supportive and challenging factors interact is crucial for the growth of sustainable education. Supportive factors like strong policies, institutional backing, and technological advances can help overcome challenges such as limited funding, rigid curricula, and resistance to change. For example, when institutions have clear sustainability goals and leadership, it's easier to incorporate sustainability into courses. Additionally, online platforms can make sustainability education more affordable and accessible, overcoming financial barriers (UNESCO, 2020).

Government policies and the commitment of institutions are key to promoting sustainable education. The United Nations' Decade of Education for Sustainable Development (2005-2014) and the Sustainable Development Goals (SDGs) have stressed the importance of integrating sustainability into education systems around the world (UNESCO, 2020). As a result, many higher education institutions (HEIs) have been inspired to incorporate sustainability into their curricula, research, and campus activities. Effective leadership and clear sustainability goals within institutions are crucial in driving these changes. Higher education institutions (HEIs) play a crucial role in tackling the challenges of sustainable development (SD), as reflected in the fact that 14 out of 18 education-related declarations focus specifically on them. With their capacity to push the boundaries of knowledge, society looks to HEIs to take the lead in driving sustainable development forward (Jennie C. Stephens, et al., 2008).

Exploring the existing literature reveals how the theme of sustainable development (SD) has evolved in higher education institutions (HEIs), beginning with the Stockholm Declaration of 1972 and building through various declarations and partnerships over time (Rodrigo, 2015).

In its 2008 strategic review, the Higher Education Funding Council for England (HEFCE) highlighted uneven progress in Education for Sustainable Development (ESD) across higher education institutions (HEIs). Most of the efforts were centered around making campuses more environmentally friendly, with less emphasis on reforming teaching and learning approaches (SQW Limited, 2006.)

A similar pattern is seen in Malaysian higher education institutions (HEIs). Data from three leading public research universities reveal that their sustainability efforts are mainly concentrated on greening the campus, adopting green procurement practices, and conducting research in green technology (Siti Sarah Omar et al. 2009).

Sustainable education is essential for facing the challenges of the future. Its progress depends on a mix of supportive factors, like strong policies and the commitment of institutions, as well as overcoming challenges such as limited funding and resistance to change. While we have made strides in incorporating sustainability into education, it's crucial to address financial barriers and raise awareness to fully unlock its potential. Higher education institutions play a key role, but they need ongoing leadership and reforms to truly push sustainability forward.

Hence from the above literature it can be hypothesised that

H5: Growth of Sustainable education is shaped by both supportive factors and challenges.

5. Conclusion and Future Prospects of the Study:

Teaching and learning about the sustainable development topics can enrich the learners and equip them to take initiative about sustainable development. Awareness along with participation of the learning community and the stakeholders concerned, can enhance the process of education for sustainable development. Education for sustainable development provides us with solutions for ecological and social problems. Our study revealed that a change in management perspective significantly enhances sustainable development, Sustainable education and green education are complementary to each other, higher educational institutions play a leading role to promote education for sustainable development, distinctiveness of Environmental Education and Education for sustainable development and the inclusiveness of education with its support-system and challenges. Thus, Education for Sustainable Development will play a challenging role for the present as well as the future generations with the implementation of new strategies, radical problem solving initiatives and its transformative ideas, bearing a holistic nature. Thus ESD can enhance the knowledge of sustainable goals and open the doors for a quantitative study along with other research questions, which we can explore in future.

6. Policy Prescription:

So far, most of the policy initiatives have been taken by the Government authorities of the country, but now private professionals should also come forward to take the responsibility to create a sustainable environment in the educational sphere. Till date the initiatives that have been taken are all found to be more in theories which are verbal without any such numerical records and database, but now it is of urgent need to quantify and measure the magnitudinal effect of the policies that have already been implemented. As a policy measure, transparent funding mechanism activity such as blockchain is essential in fund raising as well as allocation of funds for sustainable-education programs are required to be implemented.

Initiatives should be taken by both the Government officials and private professionals for building up of new distinguished Research Centres focussing particularly upon ‘Sustainable Education practices. Policies introducing collaborations between green education and industries hiring employees in the green job markets are essential to capture the untapped human capital.

Applicability of green educational practices is only possible if and only if the policies that are taken or are going to be taken are properly implemented and accountability of these policies are properly done.

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