INTERNATIONAL JOURNAL OF RESEARCH CULTURE SOCIETY
Monthly Peer-Reviewed, Refereed, Indexed Journal
Volume - 8, Issue - 5

ISSN(O): 2456-6683
[Impact Factor: 7.148]
May - 2024

IJRCS

DOIs:10.2017/IJRCS/202405001 --:-- Research Paper / Article / Review

A Review on the barriers to the implementation of Education for Sustainable Development

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Abstract: *Amidst the global crisis, there is an increasing awareness of the need to adopt sustainable lifestyles because of the immense social, environmental, and economic issues that threaten sustainable development. We must all work together to adopt actions that will ensure our future lives are sustainable if we are to have one. Education is a tool that can inform the next generation about the dangers if sustainable ways are not followed, and it can help to promote sustainable values. Also, one of the main components of Sustainable Development Goals (Agenda 2030) is Education for Sustainable Development. However, implementing education for sustainability has not always been an easy process in many countries. This study reviews previous research on barriers to implementing education for sustainability in different countries. Nine research publications from 2012 to 2023 have been reviewed for this purpose. This study will help the teachers and stakeholders to understand the barriers to education for sustainability and ways in which the stakeholders can take steps to promote and integrate sustainability in education.*

Key Words: *Education, sustainable, development, barriers, review.*

1. INTRODUCTION :

According to the World Economic Forum (2023), the ensuing ten years will be marked by environmental and social crises, propelled by fundamental geopolitical and economic patterns. Sustainability is a term that has become prevalent in recent years (Mensah, 2019) due to the growing realization of the danger that looms in the future if the human way of life continues without prioritizing sustainability (Mc Manners, 2019). The way resources and the environment are being exploited for progress and economic gains, its adverse effect is apparent everywhere in the world and it has sent alerts to nations and governments to take necessary steps and respond in a way that will aid in mitigating the threats to the future civilization (Srivastava, 2012). According to Sakalasooriya (2021), sustainability is not a result but an ongoing process. The ability of social and ecological systems to adapt is necessary for the dynamic process. Sustainability refers to the preservation of natural systems' ability to uphold and enhance the standard of social systems. Srivastava (2012, p.7) claims that "equitable and balanced" development is a better way to characterize sustainable development. This means that for development to be sustainable, it must simultaneously address the interests of various groups of people within and between generations as well as balance them across the three main interconnected domains of the “economy, society, and environment.”

However, the popularity of the term does not imply the concept and its real-life application is known to all. It is desirable to have full-fledged information about the concept of sustainability and its implications both at the global and individual levels about how it can be incorporated into our lives to reach the goals of sustainability (Mensah, 2019).

Sustainable Development

The World Commission on Environment and Development released the Brundtland Report, also titled Our Common Future, in October 1987. According to the official definition of "sustainable development" given in that report, it means "meeting present needs without compromising the ability of future generations to meet their own needs."

The United Nations Development Program (UNDP) is among the principal organizations striving to achieve the Sustainable Development Goals by 2030. Achieving the SDGs requires the deliberate efforts of the various nations of the world. It is the United Nations that has made efforts by putting up policies to combat the problems related to sustainability (Fayomi et al.,2018) and in these efforts, leaders of 189 countries adopted the resolution of MDG

(Millennium Development Goals) in a meeting held in the United Nation headquarters in New York in September 2000. Following the United Nations' 2015 review of the MDGs, several inadequacies were found that affected the MDGs' efficacy. The SDGs (Sustainable Development Goals) as they are known today were ultimately inspired by this review. The Sustainable Development Goals (SDGs) were created to address the shortcomings of the earlier Millennium Goals implementation. They cover 17 essential needs for life, from high-quality research to environmental sustainability.

The UN claims that the Sustainable Development Goals are a call to action for all countries, wealthy and poor alike, to achieve prosperity while protecting the environment. They know that policies meant to promote economic growth must coexist with measures that address social needs like job opportunities, health care, education, and social protection—as well as environmental protection and climate change.

Education is instrumental in disseminating the knowledge and skills related to sustainability (Kang, 2019). Developing "environmental ethics as habits, values and attitudes" can be accomplished with ESD" (Education for Sustainable Development) (Buckles, 2018). According to UNESCO, Institute for Statistics (2020) Education for Sustainable Development (ESD) "empowers learners to make informed decisions and responsible actions for environmental integrity, economic viability and a just society, for present and future generations, while respecting cultural diversity. It is about lifelong learning and is an integral part of quality education." After the 2030 Agenda for Sustainable Development was approved, ESD in higher education gained attention and is now regarded as one of the modern markers of educational excellence (Anghel & Neculau, 2022).

To accomplish the SDGs by 2030, Education for Sustainable Development has been prioritized by UNESCO and it is making every effort so that the member states can implement ESD. However, it remains to be seen to what extent the countries have been able to include Education for Sustainable Development.

Rationale for the study

Given the importance of sustainability, it is imperative to understand the problems and obstacles faced by educational institutions in integrating education for sustainability into their curriculum. Undoubtedly there are some steps taken in this direction but to what extent it has been successful and whether it has raised some consciousness among the students and teachers remains to be seen. Therefore, the study intends to find the causes that obstruct school administrators and teachers from implementing sustainability as an important part of curricula.

Research Questions

1) What are the factors that act as obstacles to the implementation of Education for Sustainable Development in educational institutions?
2) What are the steps that can aid in including Education for Sustainable Development in educational institutions?

2. METHODOLOGY:

Search strategy of studies

The journal databases of ERIC, Google Scholar, Science Direct, Springer, Elsevier were searched for research articles with keywords such as "Education for Sustainable Development"; "barriers in implementing sustainability in education"; the "problems faced by teachers in implementing sustainability in classrooms"; "implementing education for sustainability in educational institutes." Nine studies were selected from 2012 to 2023. Only those studies were included that were related to the barriers to implementation of sustainability in education and only those research articles were selected that were in English language. After scrutinizing the titles and abstracts of 28 studies, 13 studies were selected, *nine* were finalized, and the rest were excluded as those studies were meta-analyses and review papers.
The included studies were categorized and analyzed under the following headings-

1) Author name and year 2) Country 3) Objectives 4) Sample 5) Tool 6) Findings

Table 1

Review of studies

S. No.	Author and year	Country	Objectives	Sample	Tool	Findings
1.	Hamwy et al. (2023)	Qatar	This study investigated the difficulties	981 middle and high school	modified version of UNESCO's	Teachers in both public and private schools had

			secondary and preparatory schoolteachers in Qatar's public and private schools encounter when attempting to teach Global Citizenship Education (GCED) and Education for Sustainable Development (ESD).	teachers from the public and private sector	international survey for teachers (2021)	difficulties when attempting to teach GCED or ESD-related topics. -lack of professional development
2.	Mondragon et al. (2023)	Spain	To determine whether teachers have begun incorporating sustainability into their curricula.	403 teachers from the University of the Basque Country	Questionnaire (open and closed-ended questions)	While some educators include sustainability in their lessons, others do not address sustainability-related topics.
3.	Parry & Metzger (2023)	UK	To give a first-hand description of the discrepancy between global sustainability education policy and a classroom teacher's actual experiences	Author	Author's reflections as a science teacher	The cognitive aspects of learning are given more attention, teachers are not given enough support, and Earth Science education is of low quality.
4.	Sezen-Gültekin & Argon (2022)	Turkey	Based on the opinions of the teachers, this study sought to identify metaphors, obstacles, and facilitators related to educational sustainability.	24 teachers studying for their Master's degree at Sakarya University Institute of Educational Sciences.	Semi-structured interview	The management style, stakeholders, policies, and budgetary difficulties all posed obstacles to the sustainability of education.
5.	Dixit & Sehrawat (2022)	India	To assess how sustainability education is currently being taught in two schools in Bengaluru, Karnataka, India schools.	35 teachers	Interview and Classroom observations	Teachers' attitudes and knowledge about sustainability were lacking. The dissemination of sustainability knowledge was exam-focused and did not address the development of positive attitudes.

6.	Kandangama (2018)	Sri Lanka	To identify challenges and barriers to implementing ESD in Secondary Schools in Sri Lanka.	36 Geography teachers from secondary schools	Survey using questionnaire and interview.	Problems such students' lack of interest, exam-oriented attitude, and lack of focus on ESD in curriculum
7.	Filho et al. (2017)	Austria, Denmark, France, Germany, Italy, Netherlands, Portugal, Spain, Sweden and the United Kingdom	an examination of the core barriers to integrating sustainable development in universities.	Universities across the world	International questionnaire-based survey	The biggest barriers to sustainable development are found in the fields of administration and management; lack of awareness and an absence of environmental committees.
8.	Kanyimba et al. (2014)	Namibia	This study examines the obstacles that Namibian higher education institutions face in implementing the interdisciplinary model of education for sustainable development.	52 lecturers	Questionnaire (closed-ended and open-ended questions)	The results show the main barriers to be dispositional, situational, and institutional.
9.	Evans et al. (2012)	Australia	The challenges faced by the staff and principals of two regional primary schools in Australia's Far North Queensland and how those difficulties were resolved	2 case study schools	interviews, observations, analysis of key documents, and archival records, and anecdotal evidence.	Main barriers are time & money, staff resistance, and limits to conceptual understanding.

3. DISCUSSION:

Primarily the reviewed works were from countries like Qatar (Hamwy et al., 2023), Spain (Mondragon et al., 2023), UK (Parry & Metzger, 2023), Turkey (Sezen-Gültekin, & Argon, 2022), India (Dixit & Sehrawat, 2022), Sri Lanka (Kandangama, 2018) Namibia (Kanyimba et al., 2014), Australia (Evans et al., 2012) and one study (Filho et al., 2017) where data was collected from different countries: Austria, Denmark, France, Germany, Italy, Netherlands, Portugal, Spain, Sweden, and the United Kingdom.

After reviewing the research papers, it was found that there are different problems that educational institutions face in their attempt to implement education for sustainability. Some of the barriers have been discussed in this paper.

Lack of funding

Naz et al. (2023) emphasized that to achieve the fourth sustainability goal by 2030, quality education is required which means that adequate resources and revenue are needed. Lack of funding and finances were highlighted in some of the reviewed studies as reasons for not implementing Education for Sustainable Development (Evans et al., 2022; Filho et al., 2017; Kandangama, 2018; Sezen-Gültekin, & Argon, 2022). Evans et al. (2012) conducted the study in Australia and reported that even though funding had been made available, few schools were taking part in these particular sustainability projects. Because numeracy and quantitative literacy were prioritized over sustainability education, the subject is either disregarded or given little weight. On the contrary, a study conducted by Hamwy et al. (2023) showed that schools and educators in Qatar do not have to worry about finances as a good amount is allotted by the government for the implementation and teaching of Environmental and Global citizenship education.

In a nutshell, many educational institutions lack funding and therefore Naz et al. (2023) suggested in their study that there should be the formation of an "Education Development Bank", particularly in developing countries. It claims that an independent corporation might offer long-term funding options to support the education industry and associated institutions.

Lack of awareness among teachers

Teachers have an important role to play in the implementation of the Education for Sustainable Education. However, many educational institutes do not have the provision of orienting the teachers about the way Education for Sustainable Development has to be implemented. According to Evans et al. (2012), many educators are not properly trained to teach sustainability. As a result, teachers focus on teaching certain topics of sustainability while overlooking others, most likely due to ignorance of the kinds of activities that might be needed to solve difficulties.

Kanyimba et al. (2014) in their study on lecturers from the University of Namibia found that while 57% of lecturers taught ESD (Education for Sustainable Development) concepts in their courses, 31% did not, and 12% were not sure whether they did use or not. The primary dispositional obstacle to integrating sustainability into education was the lack of knowledge among lecturers regarding ESD. In the study by Mondragon et al. (2023) 28.78% of the surveyed teachers said they did not cover sustainability issues in their teaching. The majority of this group was ignorant of the 2030 Agenda and did not think that ESD could offer its graduates any important competencies. The same was reported by Parry and Metzger (2023) in their study that since science and geography curricula covered the majority of sustainability subjects, non-science teachers felt no need to incorporate sustainability into their lessons. The teachers also believed that integrating sustainability into the curriculum would have a detrimental effect on pupils' academic achievement. Sezen-Gültekin, & Argon (2022) found that teachers in Turkey themselves said that no activities related to sustainability are taught in the educational institutes of Turkey. Thus, a vital barrier to the implementation of Education for sustainable development is the ignorance of teachers about the importance of sustainable development and therefore they do not incorporate sustainability topics in their teaching.

A study in Sri Lanka by Kandangama, (2018) also emphasized the lack of knowledge among teachers regarding sustainability topics. In the Indian context, Dixit & Sehrawat (2022) surveyed teachers and found that even though social and environmental themes are covered in NCERT (National Council of Educational Research and Training) textbooks across a variety of courses, 74% of teachers were unaware of this. Upon observing classroom lessons, it was discovered that teachers frequently provided material that was not supported by science and was instead based on cultural ideas. Both Kandangama (2018) and Dixit and Sehrawat (2022) pointed out that due to the exam-centric curricula, teachers avoided getting into discussions on environmental and sustainability issues in the classroom. Their main goal was to complete the syllabi and therefore they evaded any questions related to sustainability beyond the textbook content.

Lack of professional development

According to Hamwy et al. (2023), less than 18% of teachers in their study had undergone training in Education for Sustainable Development (ESD) and Global Citizenship Education (GCED). Most of the teachers said they hardly had opportunities for Professional development (PD) for teaching ESD/GCED. The teachers in this study revealed that they received support from the school for organizing awareness days for various social and environmental issues and diverse cultural identities.

Parry and Metzger (2023) cited that according to a recent global survey by Educational International and UNESCO of 58,000 primary and secondary teachers, teachers are more at ease instructing students in cognitive skills than they are in supporting the social-emotional and behavioral learning that is so vital for group problem-solving and action. Overall, the research papers indicated that the teachers were found to be comfortable teaching concepts to the students in different subjects but they are reluctant to incorporate sustainability topics in their teaching as it requires unconventional teaching methods and activities for the students. This in turn means that teachers have to do the brainstorming and they need to make themselves well aware of the problems and solutions of sustainability before facing

the students. Thus, the need for in-service and pre-service training in sustainability topics becomes essential. Hamwy et al. (2023) suggest that as education professionals have a substantial influence on bringing a change in schools and society, it is essential that ESD be incorporated into teacher preparation programs. Kaniyemba et al. (2014) also likewise suggest staff development training and teaching strategies like team teaching which again would require trained teachers who can integrate ESD; the study also emphasizes that resources must be provided to the lecturers so that they can teach ESD concepts to their students.

According to Lozano et al. (2015) and Moreno Pino et al. (2022), awareness and training on sustainability has been shown to improve the perception of teachers towards the integration of sustainability in teaching.

Lack of support and facilities in educational institutions

Filho et al. (2017) collected qualitative and quantitative data from experts, researchers, and teachers from different universities across the world. Out of all the listed obstacles that were included in the questionnaire, the ones with the highest magnitude included lack of support from the management, lack of appropriate technology, lack of awareness, lack of environmental committee, lack of buildings with sustainable performance, and government barriers. Kanyimba et al. (2014) mentioned the lack of teaching resources and the lack of appropriate rules for implementing sustainability as problems that limited the integration of sustainability in education. Parry and Metzger (2023) spoke about how the students in the high school were keen to set up a sustainability club and the school supported them in this regard. To create awareness about sustainable future sustainability club may be beneficial for the students.

Sezen-Gültekin, & Argon (2022) pointed out that barriers to implementing sustainable education were political interference in education, low teacher quality, lack of educational infrastructure, and inadequate managers. According to the teachers in the study of Sezen-Gültekin, & Argon (2022) administrative actions and educational policies can be facilitators for educational sustainability. Thus, the lack of proper educational policies impacts the implementation of educational sustainability.

Administrators and leaders play an important role in framing the curricula and they can play a pivotal role in incorporating sustainability in educational institutions as pointed out in the reviewed papers. According to Evans et al., (2012), “trust and proactive principal support” as well as discussion and negotiation with the teachers can help infuse sustainability in education in schools. Filho et al (2017) and Kaniyemba et al. (2014) have highlighted the importance of government policies and management of education around the countries for the implementation of ESD.

Steps to facilitate the implementation of educational sustainability

This review showed that many educational institutes and teachers face some or the other obstacles in implementing education for sustainability. Some of the ways to promote the implementation of education for sustainability have been discussed below.

Parry and Metzger (2023) suggested that students need to be given the chance to participate in action-oriented, experiential learning and to apply what they have learned to real-world situations if they are to become change agents for a better future. The students in the study of Parry and Metzger (2023) put forth the idea for a sustainability-themed module that integrates all branches of science, politics, geography, and history which is a great place to start when creating interdisciplinary learning opportunities. Nevin (2008) gave some recommendations on how schools can make sustainability a part of their curriculum. According to Nevin (2008), there is a need to use a range of teaching strategies, including drama, literature, art, and debate, to demonstrate the procedures. Students must be permitted to weigh in on decisions on the structure and subject matter of educational programs; it is pertinent to take up local and international concerns and always ensure the content planned and employed serves long-term purposes.

The very nature of sustainability is complex and multidimensional, and it requires several teaching and learning strategies (UNESCO, 2014). The inquiry approach is one of the teaching ways that will allow the students to students to think, reflect, and make judgments to research effectively and offer solutions (Seatter & Ceulemans, 2017). There is a need to adopt an active learning constructivist approach to teaching topics of sustainability (Kalamas Hedden et al., 2017). Teaching pupils to adapt to changing circumstances and work through challenges outside of the classroom prepares them for future problem-solving with sustainability. Students will gain from studying sustainability with complete immersion since they will be “future decision-makers, issue solvers, and change agents” (Kalamas Hedden et al., 2017). According to King (1993), “Active learning simply means getting involved with the information presented—thinking about it (analyzing, synthesizing, evaluating) rather than just passively receiving it and memorizing it.” These teaching methods are unconventional and can aid in developing problem-solving strategies in students which will help teach sustainable topics. Orienting the teachers about these methodologies and also making the trainee teachers apply them when they are doing teacher training courses can be helpful. Brodowski (2017) recommended that teachers should follow student-centered teaching in each lesson and incorporate “real life, sustainability-related critical thinking and

problem-solving." They should gain knowledge on sustainability-related topics and should be able to transfer it to the students.

Having strong and visionary leaders in educational institutions—especially in higher education—and incorporating internal and external stakeholders in the process of implementing sustainability initiatives are two more ways to ensure implementation. (Weiss et al., 2021). Even Daniels and Niemczyk (2022) suggest that HEIs have an important role in ensuring that "sustainability literate graduates are nurtured who are aware of the present and future crisis.

At the school level, school leaders and the school management can play an important role by being catalysts for bringing about the desired change in the educational setup that will promote education for sustainability (Mogaji & Newton, 2020; Müller et al., 2021).

4. CONCLUSION :

For including sustainability-related education, conventional education will not be insufficient. The need of the hour is to encourage learning and thinking that is relational, integrative, and empathetic. Schools should be models of sustainability—inclusive, democratic, healthy, carbon-neutral environments that set the stage for accomplishing the SDGs (Gem Report, UNESCO, 2016). There is a need to develop whole-school approaches that promote environmental teaching, learning, planning, and operations by drawing attention to the ties between the environment, economy, and culture. (Gem report, UNESCO, 2016). The teaching community and the management need to take the initiative for the inclusion of sustainable development education in the curricula as it is the only way in which students can be informed about the ways to take action to promote sustainable development.

The promotion of sustainability clubs in educational institutes and the importance of the role of management and government policies cannot be denied. Teachers are also overloaded with work. Therefore, from the time of designing and redesigning the curricula, the experts and administrators need to frame the curricula in a way that is interdisciplinary and sustainability topics and activities are integrated into different subject areas. Schools and colleges must serve as role models in promoting sustainability. Professional development of the teachers also needs to be given utmost importance.

Thus, to help stakeholders understand and address these issues and ensure that Education for Sustainability is implemented successfully worldwide, the current review outlines the issues pertaining to its implementation.

5. LIMITATIONS AND FUTURE DIRECTIONS :

The present study was limited to the review of nine studies, and it was limited to the obstacles that impede the implementation of sustainability in education. Few studies were found in Asian countries, particularly India. Notably, India is taking a step toward including and disseminating information about sustainability. The policy document 'National Education Policy' (2020) by the government of India emphasizes on the importance of environmental education at all levels of education. Higher education in India is incorporating sustainable education in their teaching and research (Radha & Arumugam, 2023); some examples are Bharathidasan University in Tiruchirappalli which launched the green campus initiative; IIT Madras in Chennai, Tamil Nadu, which has incorporated the SDGs into its curriculum, research, and outreach activities. These are some examples and it remains to be seen how the students and teachers are perceiving the integration of sustainability in the curricula in places where it has been implemented.

Future studies can review how some educational institutes in countries across the world have implemented education for sustainable development, the strategies for teaching used in such institutes, and also how it is impacting the students' and teachers' perception regarding education for sustainability.

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