International **J**ournal of Applied Research

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Education for sustainable development in contemporary era: A meta-analysis

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Abstract
Sustainable development is the development that meets the needs of present generation without compromising the ability of future generations to meet their own needs. Education for sustainable development allows every human being to acquire the knowledge, skills, attitudes and values necessary to shape a sustainable future. Basic education is a key to a nation's ability to develop and achieve sustainability targets. Education can improve agricultural productivity, enhance the status of women, reduce population growth rates, enhance environment protection, and generally raise the standard of living. But simply increasing basic literacy will not support a sustainable society. Institutional reform, curriculum reform and development of locale specific resource material incorporating Education for sustainable development are priorities. Education for sustainable development requires including key sustainable development issues into teaching and learning like climate change, disaster risk reduction, poverty reduction, bio diversity and sustainable consumption. It also requires participatory teaching and learning methods that motivate and empower learners to change their behavior and take action for sustainable development like conservation of energy, water, tree plantation, use of natural energy etc. If the goals of sustainable development are to be realized, the attitudes of all the stakeholders of education at all levels with regard to our current life styles and impact they have on the environment will need to change.

Keywords: Sustainable development, education, modern India

1. Introduction
Education for Sustainable Development (ESD) has emerged as a critical and imperative component of contemporary educational discourse, aligning with global efforts to address the complex and interconnected challenges facing our world. In an era marked by environmental degradation, social inequality, and economic uncertainties, the role of education in shaping a sustainable future has never been more pronounced. Sustainable Development Goals (SDGs), adopted by the United Nations, underscore the urgency of fostering a global mindset that prioritizes environmental stewardship, social equity, and economic viability. At the heart of this global agenda is the recognition that education is not merely a means of transmitting knowledge but a transformative force capable of instigating profound shifts in individual behaviors, societal norms, and institutional practices. This introduction sets the stage for a comprehensive exploration of Education for Sustainable Development in the contemporary era, delving into its conceptual foundations, historical evolution, and theoretical underpinnings. As our societies grapple with the repercussions of climate change, resource depletion, and social injustices, education emerges as a key lever for creating a more sustainable and resilient future. In this context, the following sections will unpack the multifaceted dimensions of ESD, ranging from the integration of SDGs into educational frameworks to the pedagogical strategies employed for fostering sustainability literacy. The role of technology in shaping sustainable education and the global perspectives that influence ESD practices will also be scrutinized. Moreover, this exploration extends to a meta-analysis, offering insights into the current state of ESD through an examination of existing literature. The meta-analysis aims to reveal patterns, trends, and gaps in the research landscape, providing a nuanced understanding of the effectiveness of various ESD interventions and their impact on diverse educational contexts. Challenges faced by educators, institutions, and policymakers in the implementation of ESD will be addressed, accompanied by an exploration of opportunities for enhancing ESD initiatives.

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Compelling case studies will be presented, offering tangible examples of successful ESD implementations and analyzing contributing factors to their success. Education encompasses teaching and learning specific skills, imparting of knowledge, positive judgment and well developed wisdom. It has one of its fundamental aspects of imparting culture from generation to generation. It is an application of pedagogy, a body of theoretical and applied research related to teaching and learning. The basic aim of the education system for sustainable development is 'education of a new man', 'a man of a sustainable type of thinking'. Education in its contemporary development should be aimed at the future, should "foresee" and form in a certain way and satisfy needs of future generations of people. "Education is critical for promoting sustainable development and improving the capacity of people to address environment and development issues. It is critical for achieving environmental and ethical awareness, values and attitudes, skills and behavior consistent with sustainable development and for effective public participation in decision making". The concept of sustainable development is not a mere concept leading to awareness or knowledge, but it is an act that requires more participation in the modern world. All the developed, developing and under-developed countries need to participate in sustainable development practices, so that the whole world becomes a better place to live for the present as well as for the future generations to come. The depletion of nature and natural resources can be traced back to the times when man started to live in caves, lead a nomadic life and settled for practicing agriculture. The depletion of these resources reached its zenith when the basic needs of man has given way for his greed, whereby, he started to exploit the environment by cutting trees, destroying forests, destroying land, constructing buildings, depleting of non-renewable resources, using various modes of transportation, development in technology etc. It is from this realization that 'Education for sustainable development' (ESD) emerged with an immediate urge to preserve and conserve our nature and natural resources. Education for Sustainable Development (ESD) is simultaneously a sub-field of education and a conceptual tool to aid policy makers in authoring educational policies that take into account the present environmental, societal and economic challenges. According to the UNESCO, it is based on all levels and types of learning - learning to know, learning to be, learning to live together, learning to do and learning to transform oneself and society." It further says that, "Perhaps ESD can be seen as the total sum of diverse ways to arrive at a 'learning society' in which people learn from and with one another and collectively become more capable of withstanding setbacks and dealing with sustainability-induced insecurity, complexity and risks. From this vantage point, ESD is about through education and learning- engaging people in sustainable development issues, developing their capacities to give meaning to SD and to contribute to its development and utilizing the diversity represented by all people-including those who have been or feel marginalized- in generating innovative solutions challenges".

2. Statement of problem: The statement of problem is reported as under: Education for sustainable development in contemporary era: A meta-analysis

3. Objectives of this study: The objectives of this study are:

1. Assessment of Current State
2. Integration of SDGs
3. Conceptual Understanding

4. Methodology: The methodology and procedure of this study is as under

- **Service Learning:** Integrate service-learning projects that connect classroom learning with community service. Allow students to apply their knowledge and skills to address local sustainability issues, fostering a sense of civic responsibility.
- **Experiential Learning**: Arrange field trips to environmental sites, sustainable businesses, or community projects. Provide hands-on experiences that allow students to witness sustainable practices in action and understand their impact.
- **Interdisciplinary Teaching:** Integrate sustainability concepts across various subjects, promoting interdisciplinary learning. Demonstrate the interconnectedness of environmental, social, and economic issues through collaborative teaching efforts.

5. Rationale of the study: Sustainable Development is a complex concept with its origin in the natural and social Sciences that has been developed through international dialogue in response to the challenges facing the world today. A core principle behind sustainable development is the idea that economic, social and environmental conditions play a major role. Education Sustainable Development has five components; knowledge, skills, perspectives, values and teaching issues which are to be addressed in a formal curriculum for sustainable development. The basic vision of the United Nations Decade for Education for Sustainable Development (DESD) is a world where everyone has the opportunity to benefit from education and learn the values, behavior and life styles required for a sustainable future and for positive societal transformation. Some of the proposed DESD objectives are to facilitate links and networking, exchange and interaction among stakeholders in ESD; provide a space and opportunity for refining and promoting the vision of, and transition to sustainable development through all forms of learning and public awareness; foster increased quality of teaching and learning in education for sustainable development; develop strategies at every level to strengthen capacity in ESD. Education For Sustainable Development examine major environmental issues for local, national, regional and international points of view, so that students receive insights into environmental conditions in other geographical areas, Focus on current and potential environmental situations while taking into account the historical perspective; Promote the value and necessity of local, national and international co-operation in prevention and solution of environmental problems; Enable learners to have a role in planning their learning experiences and provide an opportunity for making decisions and accepting their consequences; Relate environmental sensitivity, knowledge, problem solving skills and value clarification to every age but with special emphasis on environmental sensitivity to the learner's own community in early years; Help learners discover the symptoms and real cause of environmental problems; Emphasize the complexity of environmental problems and thus the need to develop critical thinking and problem solving skills; Utilize diverse learning environments and a broad array of educational approaches to teaching/

learning about and from the environment with due stress on practical activities and firsthand experience. The world is facing complex, interrelated challenges such as climate change, biodiversity loss, social inequality, and economic instability. ESD addresses these issues by preparing individuals with the knowledge, skills, and values necessary to contribute to sustainable solutions. Environmental, social, and economic challenges are intricately interconnected. ESD recognizes the holistic nature of these challenges and provides an educational framework that fosters an understanding of the interdependencies between ecological, social, and economic systems. The global adoption of the United Nations Sustainable Development Goals (SDGs) emphasizes the urgency of integrating sustainability into all aspects of society, including education. ESD aligns with these goals, contributing to the achievement of targets related to quality education, gender equality, climate action, and more. ESD promotes a long-term vision for education that extends beyond immediate economic considerations. It prepares learners to think critically and make decisions that consider the well-being of present and future generations. ESD is not just about acquiring knowledge; it emphasizes transformative learning experiences. It encourages learners to question assumptions, develop a sense of responsibility, and adopt sustainable behaviors. ESD cultivates a sense of global citizenship, fostering an understanding of one's role in a globally interconnected world. It promotes values such as empathy, cultural awareness, and a commitment to social and environmental justice. The contemporary era demands innovative pedagogical approaches that go beyond traditional teaching methods. ESD encourages experiential learning, project-based activities, and the integration of real-world issues into the curriculum. As the job market evolves, there is an increasing demand for individuals with skills related to sustainability, environmental management, and social responsibility. ESD equips learners with the competencies needed for a workforce that values sustainable practices. ESD enhances resilience in the face of crises, whether they be environmental disasters, social conflicts, or economic downturns. It instills a mindset that seeks innovative solutions and adapts to changing circumstances. With growing concerns about resource scarcity, ESD emphasizes resource efficiency and conservation. It encourages sustainable practices in areas such as energy use, waste management, and natural resource utilization. ESD brings ethical considerations to the forefront of education. It encourages individuals to reflect on the ethical dimensions of their choices and actions, promoting a sense of responsibility toward the environment and society. According to Yadav, A. (2016) [12]. Sustainable Development is development that meets the need of the present without compromising the ability of future generations to meet their own needs. As per Lipin, M. (2021) [19] Implementation of principles of sustainable development requires radical change in the ways of modern society activity and thinking in general and education in particular. According to Kumar, G. (2021) [20] The mandate of ESD is very broad and wide. Consequently, at the same time it has become challenge as well as an opportunity. Sulaiman, M. (2020) [13] Education for sustainable development is a dynamic perspective that includes a new approach to education that encourages people of all ages to shoulder responsibility for forming and enjoying a sustainable future. As per Mensah, J. (2020) [21] Sustainable Development has attracted much attention in the academic,

governance, planning and development intervention space. According to Maxwell, A. (2020) [14] that there is a strong need and important for integrating Education for sustainable development (ESD). There is a felt need for educational reform. It extends beyond the boundaries of individual school subjects and requires the attention of teachers, educational administrators, planners and curriculum agencies.

6. Conclusion
Education for sustainable development (ESD) in the contemporary era is a critical and transformative approach to preparing individuals for the challenges and opportunities of a rapidly changing world. As societies grapple with complex environmental, social, and economic issues, integrating sustainable development principles into education becomes essential. The methods and methodologies discussed provide a roadmap for educators, policymakers, and stakeholders to effectively incorporate ESD into educational systems. By adopting a holistic and interdisciplinary approach, leveraging innovative teaching methods, and promoting real-world experiences, education can play a pivotal role in shaping environmentally conscious, socially responsible, and ethically aware global citizens. The contemporary era demands a shift in educational paradigms, moving beyond traditional models to embrace a curriculum that reflects the interconnectedness of global challenges. Through project-based learning, service initiatives, and experiential education, students can develop not only a deep understanding of sustainability but also the skills and mindset needed to actively contribute to sustainable solutions. The involvement of stakeholders, including educators, students, communities, and businesses, is crucial in creating a collaborative and impactful educational environment. Furthermore, the integration of technology, multimedia resources, and global perspectives enhances the relevance and effectiveness of ESD. Educators should continuously adapt their methods to reflect emerging trends, ensuring that the curriculum remains dynamic and responsive to the evolving nature of sustainability challenges. The emphasis on critical thinking, ethical considerations, and values instills in students a sense of responsibility and empowerment to make informed decisions that contribute to a more sustainable and equitable future.

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