

Teachers' Perceptions of Environmental Education, Awareness, and Behavior Toward Environmental Issues

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ABSTRACT

Background and Objective: From elementary school onwards, environmental education ought to be a significant part of education worldwide. The school teacher bears a significant amount of responsibility for fostering children's environmental consciousness; hence need to be adequately prepared in the subject of environmental education. The objective of this study is to assess teachers' perceptions of environmental education, awareness, and behavior toward environmental issues. **Materials and Methods:** A review of earlier research studies on the relationship between environmental issues and environmental education was conducted. Evaluations were conducted on the environmental awareness techniques and how they were applied in pre-primary, primary, and upper grades. The pertinent material was retrieved and examined from Google Scholar, cited journals, international blogs, institutes, and educational databases. **Results:** According to the report, the environmental education curriculum needs to be reoriented to make it more appealing and sensitive to regional environmental concerns. Furthermore, it is necessary to reorganize associated policies to raise awareness of environmental management issues among the general public, particularly among school-level children. Environmental education is necessary to enhance students' environmental knowledge, attitudes, intentions, and behaviour. Incorporating environmental education into students' education is crucial. To empower teachers and match their training with the most recent curricula, it is suggested that teacher training be redesigned. **Conclusion:** Both cognitive and practical-behavioral elements are part of the future teachers' vision for implementing environmental education in the classroom. A substantial portion of general education is devoted to environmental education. Primary school pupils' thinking is heavily influenced by experience, and they pick up knowledge from authority figures fast. A future educator will be able to motivate children to take local action for a better future and educate them about today's environmental issues.

KEYWORDS

School teachers, environmental education, environmental issues, environmental awareness

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INTRODUCTION

In recent years, the significance of environmental education (EE), particularly at the school level, has grown since it fosters the development of conscientious individuals. Children learn a variety of different topics that are crucial to environmental conservation, in addition to environmental preservation, at school. An



effective method of raising awareness for the preservation of the environment, its biodiversity, and the sustainable use of natural resources is environmental education. Through both formal and informal educational channels, teachers can create a workforce of knowledgeable, talented, and driven students. They are the potential change agents. Understanding environmental issues and adhering to sustainable development principles are more important than ever for humanity as a whole¹.

The 2020 Indian education policy places a strong emphasis on sustainable development and environmental education for everybody. With an emphasis on historically underrepresented, underprivileged, and marginalized groups, the new education strategy seeks to offer all students, regardless of where they live, a high-quality educational experience. According to the policy, our institutions' curricula and instruction must instill in students a profound respect for the fundamental principles and ideals of the constitution, a sense of harmony with the human race, and a thorough comprehension of the roles and responsibilities of people in a changing world².

The environment should be a teaching process that incorporates social and cultural components rather than simply a scientific subject. The way that environmental concerns, challenges, and conditions are described in environmental education materials should be fair and up-to-date. Students should learn about the attitudes, values, and sentiments that shape their opinions on these kinds of topics. Also, EE should help students develop critical thinking abilities so they can deal with environmental issues in a variety of contexts. In addition, it encourages students to make a difference and supports civic education and responsibility. Furthermore, EE should be clear and instructionally sound, utilizing various learning methods and having sound objective goals for student assessment³. Developing the abilities required to understand and value the connections between human culture and the health of the natural environment is the goal of environmental education, which is a method of teaching values and elucidating ideas. It encompasses more than just imparting knowledge and information; it also includes decision-making experience, accountability, and a code of conduct for environmental protection and assessment issues⁴.

The EE might give individuals the viewpoint to understand environmental disasters and human life coexistence enabling survival, advancement, and development. Furthermore, social and natural sciences can be incorporated into the primary school curriculum through environmental studies. The curriculum should include global environmental issues and the impact on the local community to move towards sustainable development⁵. To continue the tradition and inspire students, educators are urged to incorporate EE into their lesson plans. To improve their knowledge of environmental issues, teaching strategies, and the incorporation of sustainability principles into the curriculum, educators should have access to professional development opportunities. The impact of implementing environmental education as a distinct subject is outweighed by the effectiveness of this integrative approach. Arts, English, Interdisciplinary Studies, Mathematics, Native Studies, Science, Social Sciences, Humanities, and Technological Education are just a few of the fields where EE can be incorporated². The purpose of this study is to ascertain the knowledge, attitudes, and behaviors of teachers about environmental education, environmental issues, and communication with pupils.

Implementation of environmental education at the school level: School teachers play a crucial and strategic role in education. To meet societal expectations, teachers might work both within and outside of the classroom. By leading and providing positive examples, the teacher works closely with pupils to instill science and technology as well as positive values⁶. Students need to be aware of the environment and the issues that surround it to perform their roles properly. Students can be made more environmentally conscious by a knowledgeable and experienced educator who uses instructional strategies about environmental issues and awareness. Both formal and informal educational systems have placed a strong emphasis on environmental education to empower individuals to live fulfilling lives. In an informal educational system, teachers can have a significant impact on their pupils environmental consciousness⁷.

Research on significant life experience (SLE) indicates that exposure to nature-related media, time spent outside, and the presence of role models promote pro-environmental behavior. Furthermore, encouraging SLE-style experiences like outdoor activities may be just as crucial to accomplishing the objectives of environmental education (EE) as increasing equity and quality in schools. Students' environmental knowledge was adversely correlated with watching nature-related television; therefore, initiatives to support outdoor activities that foster close contact with nature should be sustained⁸.

Teachers need to be better equipped to handle the enormous and difficult challenge of developing an environmental education program that is taught throughout the entire school. For educators to effectively facilitate the environmental education process, there is an urgent need for improved pre-service and in-service teacher training. Focusing on teacher training requires the creation of a nationally recognized set of standards for assessing successful environmental education programs and tools that will help educators create their environmental education curricula. Additionally, it is vital to emphasize the value of curriculum integration rather than the development of new courses to garner support from educators, governments, and school administrators. As schools transition to a systematic approach to environmental education, they frequently face leadership problems within their wider administrative communities as well as within their schools⁴. Teachers, in particular, can incorporate environmental education into their lessons. To achieve effective instruction at different educational levels, it is advised to create suitable training for teachers in a variety of subject areas. To implement environmental education, particularly in schools, models, media, or educational resources might also be developed⁹.

A worldwide problem and the central focus of the UNO ecological restoration program 2020-2030 is the importance of education for sustainable land management. This ought to start in the actual classroom at school. The idea of increasing biodiversity among schoolchildren will be developed through training and awareness campaigns, environmental conservation camps, and tree planting in open spaces and bare areas¹⁰. Knowledge of environmental education helps to preserve the environment and promote conservation in the local community. Since primary school is where students first enter the academic world, it offers stakeholders in the education sector the chance to create a curriculum that guarantees EE is included in the curriculum. Teachers should integrate academic work with cultural activities to teach EE. These institutions must be given the authority to concentrate more on conservation and make sure that students are sufficiently sensitized to engage in conservation effectively, since the education sector is the largest branch of government that is available in all regions¹¹. Senior teaching experience improves a teacher's attitude and thinking when it comes to environmental education. Furthermore, teachers can persuade classmates, schools, and other members of the school community to enhance teaching and learning methods that enhance student learning and achievement, making them leaders in the field of environmental education¹².

Teaching methods on environmental awareness: School education is the most efficient way to teach and learn about environmental challenges, and it provides the chance to enhance environmental behavior and awareness. The concepts of environmental citizenship need to serve as the foundation for instruction on environmental awareness. To motivate a new generation to contribute towards a sustainable climate, it is necessary to create environmental citizen tokens for kids and young people. Adults will also benefit from the youth's engagement and efforts to create a better environment. The environmental citizen tokens' biggest aim is that they will eventually adopt a climate-smart lifestyle, and that environmental citizenship will provide the next generation with practical steps to improve the climate¹³.

Instructors think that environmental education benefits from the residential programs. It improves the interaction between teachers and students as well as the interpersonal skills of the students. It's interesting to note that residential programs have a positive impact on students' attitudes, values, and understanding of the environment. The use of experiential learning techniques that gave the pupils emotional sensations

was highly valued by the teachers¹⁴. An essential setting for promoting beneficial behaviors and practices for sustainability is early childhood education. To foster adventurous experiences, child-centered communication, and the development of communal knowledge and abilities, teachers must play a key role. Kindergarten teachers have a crucial role in helping kids become sustainable eco-citizens and in taking the initiative to promote learning and participation for all parties¹⁵.

To raise awareness of environmental issues and bring about tangible improvements, students should be included in household chemical consumption habits. The usage of home chemicals should be self-audited, the primary causes and effects should be identified using systems thinking, solutions should be found, and action should be taken. This will assist in identifying viable alternatives to lessen the environmental impact of student behavior adjustments and household maintenance¹⁶. As with other fundamental social and cultural principles, it is essential to start teaching environmental awareness and preservation to young children in preschool so they can transfer the lessons into higher education. Throughout, including environmental awareness in the curriculum serves as the unifying theme².

Challenges in raising awareness towards environmental education: The modern world has made environmental conservation and management a major concern, and this can be achieved from an early age through education and awareness-raising. It is now essential for sustainable development that educators in elementary schools instill in their students a concern for the safety and preservation of the natural world. All nations must implement educational policies that mandate environmental studies beginning in preschool and increase educators' and students' awareness of new issues and concerns about the global environment. Sustainable development is now a fundamental aspect of all daily operations, and green education can help achieve the aims of sustainable development by changing society and behavior and raising awareness of climate change on a global scale¹⁷.

Teachers are essential to the shift from EE to sustainable living. Therefore, pre-service teachers must be sufficiently prepared by teacher education programs for the difficulties of the 21st-Century, such as ecological degradation, human-induced climate change, social injustice, and growing economic conflict¹⁸. The adoption of appropriate educational practices is far from being seen as optimal, given the current demand for them, and practicing teachers are aware of the significance of the environment subject. A limited understanding of the Sustainable Development Goals (SDGs) suggests a lack of specialized training in this field. Even though nearly all educators emphasize the necessity of institutional support for EE implementation, many believe this support to be inadequate. There are notably few environmental committees or coordinators in schools, and Agenda 21 and eco-audits are not widely used¹⁹.

The best-structured foundation for environmental education and action is found in the educational system, which also serves as a useful instrument for fostering in kids a positive environmental ethic in the plastic age. Both pre-service and in-service basic teacher education programs need to incorporate and enhance environmental education courses. Since female teachers have fewer opportunities than male teachers to engage in environmental activities and actions, more needs to be done to support them. Teachers in elementary schools ought to become more knowledgeable about environmental education. Similar experiences and educations are fundamentally given to male and female school teachers, which affects how they view the surroundings²⁰.

During the senior phase, teachers encountered numerous challenges when implementing environmental education. These difficulties include the need for creative evaluation techniques, teacher readiness, time limits in an already rigorous curriculum, and a lack of resources²¹. The instructors' self-reported teaching style tended to be classroom-based and teacher-dominated, even if they preferred learner-centered and

experience-based approaches. Teaching environmental themes was found to be hampered by large class sizes, capacity and training concerns, and safety concerns²². Teachers relate EE to conceptual and attitudinal knowledge and largely see it from a personal, non-professional standpoint. They have a limited and disjointed knowledge of how environmental challenges are interconnected²³.

The most challenging part of environmental education is making environmental ideals understandable to children. The educational approach needs special attention if environmental issues are to be understood more thoroughly. First of all, primary school pupils can learn the basics of the environment with great success when they use the visual and creative learning approach²⁴. Addressing socio-environmental issues is one of humanity's biggest concerns because their repercussions are already affecting life on Earth. In response to the environmental catastrophe brought on by human activity, new alliances must be established to resolve the conflict and advance the common good. To overcome the challenges and shortcomings of pedagogical practice in this area, it is imperative to highlight the significance of the university's teacher training program. Given that teachers are entrusted with using education to help create a more equitable and just society, it is imperative to comprehend the information required for teacher preparation. It is crucial to guarantee that everyone, irrespective of socioeconomic background or cognitive capacity, has equitable access to environmental education to prevent educational inequities from persisting²⁴.

Strategies to overcome challenges on environmental education: The instructors should actively participate in meaningful environmental learning during the practicum, emphasizing local environmental concerns and knowledge development. By giving prospective teachers the knowledge and abilities that, in a sense, ensure that future generations will be aware of and participate in the environmental movement¹⁸, these approaches can aid in reimagining teacher education procedures by the Sustainable Goals for 2030. Climate change poses a serious threat to species, communities, agroecosystems, and biomes. It can be mitigated by lowering greenhouse gas emissions, which have an impact on all ecosystem components in a given area, either directly or indirectly²⁵. Furthermore, boosting aquatic primary productivity, reducing surface temperature through intensive agriculture, reforestation, with special emphasis on CO₂ capture and sequestration, can significantly lower greenhouse gas emissions from fossil fuel power plants, new and existing industrial operations, and their geological storage²⁶. Building resilient communities that can adjust to and lessen the effects of environmental changes requires environmental literacy. Young people need to become more environmentally conscious and take action. A generation of ecologically informed and responsible citizens will be produced by incorporating environmental education into the curriculum, educating teachers, and involving students in hands-on activities. The expected advantages reach beyond the educational setting and support the more general objectives of environmental stewardship and sustainable development²³. Given the issue of using education to help build a more equitable and fair society, university-level teacher training programs are necessary to address the shortcomings and challenges of pedagogical practice²⁷.

Field trips: During the crucial stage of their educational journey, the students should be given a thorough awareness of environmental challenges. Field trips and community service initiatives enhance understanding and foster a sense of agency and responsibility²¹. Students' involvement and retention of environmental information were further enhanced by experiential learning activities like school gardens and nature walks. In addition to being entertaining and aiding in memory retention, these activities allowed students to interact directly with their surroundings and reinforced theoretical knowledge through practical experiences²⁴.

Planning cleanup activities for natural areas: Students can gain practical experience in environmental stewardship through the clean-up drives. In addition to strengthening the knowledge learnt in the classroom, these activities promote a feeling of community and shared environmental responsibility²⁴.

Teach students about recycling: Planning recycling initiatives and tree-planting activities will foster the development of environmentally concerned people. The pupils had more favorable attitudes towards environmental conservation, showed greater passion for recycling, and were more eager to take part in sustainability projects as they grew more conscious of their impact on the environment²⁴.

Introduction of new techniques: Advanced technology can help prevent ecological disasters and environmental crises, safeguarding not only the future of humans but also the survival of numerous other species that depend on us. People can become more aware of and informed about the environment and environmental issues through environmental education⁷. It is necessary to evaluate the approaches to make them consistent with the holistic character of environmental education. This could entail addressing a range of learning requirements, providing alternate learning forms, and supplying resources to under privileged institutions. Encourage partnerships with other parties, such as neighborhood environmental organizations, governmental organizations, and community organizations, as this enhances educational opportunities and exposes students to professionals in the field²¹.

Education programs, initiatives, and policies need to be updated. For education to benefit children, it is better to establish favorable conditions in both the structural and human dimensions. Additionally, developing and implementing community projects that promote an optimistic outlook on the environment can be beneficial²⁸. Students should be given the skills necessary to make responsible decisions as individuals and as members of a global community by fostering an awareness of the fragility and resilience of our environment. Frameworks for multidisciplinary curricula that smoothly incorporate environmental education into already-existing courses like Science, Social Studies, and Literature are required. To help teachers create interesting and educational courses that connect with students, a library of top-notch resources must be established. These resources should include case studies, multimedia assets, and lesson plans. Effective environmental education delivery also necessitates the establishment of specialized training programs to give educators the pedagogical approaches, information, and abilities they need. Content and teaching strategies should be the main emphasis of this programs²¹. According to recent educational reforms, EE must be transformative; therefore, educators must be able to provide students with activities that encourage critical thinking and problem-solving using their knowledge. To empower teachers and bring their education into line with contemporary curricula, it is advised that teacher preparation programs be updated²³.

A teaching approach that encourages the growth of future citizens with a humanistic viewpoint and an appreciation of life's complexity is essential. This approach develops our future graduates' environmental citizenship, a critical 21st-Century skill, and teaches them about the complexity of life. In particular, combining eco-humanistic ideas with Artificial Intelligence (AI) tools encourages students to be creative, think critically, work together, and communicate. This illustrates the theoretical underpinnings of eco-humanism and its applicability in developing 21st-Century skills. Beyond traditional approaches, which usually primarily focus on knowledge distribution, AI tools will help advance environmental education. Furthermore, AI can combine artistic creations with abstract environmental concepts, enhancing the connections between pupils and the natural world²⁹. The loss of wilderness areas worldwide is happening at an alarming rate, which is affecting carbon stores. Carbon budget estimation has emerged as a potential tool to gather up-to-date knowledge on the anthropogenic causes and rate of disruption of the carbon imbalance. It will assist society, policymakers, and climate scientists in reducing the effects of human-caused climate change³⁰.

Discussions, seminars, and cultural activities: Schools should plan extracurricular activities and programs focused on environmental sustainability. Teachers provide continuing professional development opportunities along with training and workshops on environmental education strategies. Teachers should be encouraged to work together to share excellent methods for integrating environmental education into

other subjects³¹. By setting up extracurricular activities like environmental clubs and getting students involved in group projects and conversations, the initiative used social norms and peer relationships to encourage pro-environmental behaviour²⁴. A fresh approach to introducing young people to nature-rich settings through questioning is provided by the unstructured and fun method in which a local community of kids and teens can express their curiosity in interacting with the natural world. With positive results for participants, this contribution further emphasizes the potential of cultural probes to initiate encounters that draw on the importance of sensory, emotional, and aesthetic experience in nature³².

People and biodiversity are significantly impacted by human-induced land alteration. Among the main issues facing conservation biologists are a lack of conservation initiatives, inadequate natural resource governance, and environmental indifference. Therefore, the development of solutions to stop the loss of vital forest species must be a major focus for biologists and social scientists³³. Teachers help create environmentally conscious citizens. Teachers encourage children to learn about the environment through experience, location-based learning, and to take part in local initiatives²². Females are more responsive to environmental education than male teachers and can play an essential role in expanding it at the secondary school level³⁰. To help pupils develop 21st-Century skills, parents and educators must work together. Teachers must not only rely on technology but also modify their teaching strategies and provide support and intermediary procedures^{28,34}.

CONCLUSION

Environmental education in elementary schools is crucial for fostering environmentally conscious and responsible citizens. Early exposure to sustainability concepts helps children develop eco-friendly habits and a sense of duty toward environmental protection. By enhancing awareness, problem-solving skills, and climate literacy, environmental education empowers future generations to address global challenges like climate change. It also promotes activism, critical thinking, and community engagement. Furthermore, integrating sustainable practices at home reinforces these lessons, encouraging lifelong environmental responsibility. Ultimately, environmental education plays a vital role in shaping a sustainable future for present and future generations.

SIGNIFICANCE STATEMENT

Environmental education is the cornerstone of the elementary school system. Given the state of the ecosystem today, environmental education becomes even more crucial. School children must be taught the importance of nature and its resources. From a young age, educators may help children develop a sense of environmental responsibility.

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