



Changing Global Trends in Environmental Education: Footsteps India to Follow

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ABSTRACT

Environmental education has emerged as a critical component of global educational frameworks, driven by escalating environmental challenges and the urgent need for sustainable development. This paper examines the evolving landscape of environmental education worldwide, analyzing key trends and their implications for educational systems. Specifically, it explores how India can align its educational practices with global standards to create environmentally conscious citizens. Through analysis of current trends including experiential learning, technology integration, and community engagement, this research provides strategic recommendations for India's environmental education transformation. This paper examines six key global trends in environmental education: greening education principles, climate action focus, curriculum integration, hands-on learning, digitalization, and youth empowerment. It analyzes why these trends are crucial for addressing urgent environmental challenges and empowering future generations. The study specifically focuses on India's alignment strategies, recommending adoption of experiential learning through school gardens and field studies, fostering critical thinking via problem-based scenarios, integrating technology including GIS and mobile applications, promoting community engagement with local organizations and traditional knowledge holders, and emphasizing sustainability principles. India's implementation roadmap includes policy reforms, curriculum development, infrastructure investments,



teacher capacity building, and community partnerships. The research concludes that India's environmental education transformation requires systematic approaches addressing all educational dimensions, positioning the country as a potential global leader in environmental education innovation while preparing citizens for 21st-century environmental challenges.

Introduction

The 21st century has witnessed unprecedented environmental challenges, from climate change and biodiversity loss to pollution and resource depletion. These challenges have catalyzed a global transformation in environmental education, evolving it from a peripheral subject to a fundamental component of quality education worldwide.

The United Nations Sustainable Development Goals (SDGs) and UNESCO's Education for Sustainable Development (ESD) framework emphasize transformative learning approaches that equip learners with knowledge, skills, values, and attitudes necessary for creating a sustainable future.

India, home to over 1.45 billion people and facing severe environmental challenges including air pollution, water scarcity, and climate vulnerability, stands at a critical juncture. While the National Education Policy (NEP) 2020 recognizes environmental education as a priority, significant gaps remain in implementation and alignment with global best practices.

This paper examines changing global trends in environmental education and provides a roadmap for India to follow these international developments, considering the country's unique socio-economic and cultural context.

Key Global Trends in Environmental Education

Greening Education Principles

The concept of "greening education" represents a comprehensive approach integrating environmental considerations into all aspects of educational systems. Countries like Finland, Denmark, and Sweden have pioneered green school initiatives transforming educational institutions into living laboratories for sustainability. These schools incorporate renewable energy systems, waste management programs, organic gardens, and green building designs serving as practical learning environments.



The Green Schools Programme in Ireland, engaging over 3,600 schools, demonstrates how systematic greening efforts create lasting behavioral changes among students and communities. This holistic approach recognizes that environmental learning occurs through lived experiences within educational environments, not just formal curricula.

Focus on Climate Action

Climate change has emerged as the defining environmental challenge, prompting educational systems worldwide to prioritize climate literacy and action-oriented learning. Countries like New Zealand, Italy, and Argentina have integrated climate change as a mandatory subject, recognizing climate literacy as fundamental as traditional literacy skills.

This trend emphasizes moving beyond awareness-building to action-oriented learning, where students engage in real-world climate solutions such as carbon footprint reduction projects, renewable energy initiatives, and community resilience building.

Curriculum Integration

Modern environmental education has evolved from isolated subjects to integrated, interdisciplinary approaches connecting environmental themes with mathematics, science, social studies, language arts, and arts education. The Finnish education system exemplifies successful curriculum integration, where environmental themes are woven throughout subjects rather than confined to specific courses.

Project-based learning facilitates this integration, allowing students to explore environmental issues through extended investigations drawing upon multiple disciplines.

Hands-on and Practical Learning

Experiential learning has become a cornerstone of effective environmental education, moving beyond theoretical knowledge to hands-on experiences connecting students with natural environments. Forest schools in Scandinavia and the United Kingdom exemplify this approach, where students spend significant time outdoors developing practical skills and environmental awareness.

School garden programs, environmental monitoring projects, and community conservation initiatives provide platforms for authentic environmental work while developing practical skills.

Digitalization and Technology



Digital technologies have revolutionized environmental education by providing new tools for data collection, visualization, simulation, and global collaboration. Geographic Information Systems (GIS) technology enables sophisticated analysis of environmental data, while virtual reality experiences allow exploration of inaccessible ecosystems.

Online platforms facilitate global collaboration on environmental projects, connecting students worldwide in shared environmental challenges.

Emphasis on Youth Empowerment

Contemporary environmental education increasingly emphasizes youth agency and leadership, recognizing young people as active change agents. The Eco-Schools programme, active in over 60 countries, empowers students to take leadership roles in environmental management within their institutions.

Youth environmental conferences and advocacy opportunities provide platforms for student voices in environmental policy discussions, building environmental leadership capacity while creating meaningful engagement opportunities.

Why These Trends are Important

Urgent Global Need

The escalating pace of environmental degradation creates unprecedented urgency for effective environmental education. Current challenges including climate change, biodiversity loss, and pollution require immediate action achievable only through widespread environmental literacy. The COVID-19 pandemic highlighted interconnections between environmental health and human wellbeing, emphasizing the need for educational approaches that develop systems thinking for addressing complex global challenges.

Empowering Future Generations

Today's students will inherit the most severe environmental challenges in human history and must be equipped with necessary knowledge, skills, and values. Research demonstrates that early environmental education creates lasting environmental values and behaviors persisting into adulthood. Students receiving comprehensive environmental education are more likely to pursue environmentally responsible careers and engage in lifelong environmental stewardship.



From Theory to Practice

Effective environmental education must bridge theoretical knowledge and practical application, helping students develop competencies for real-world environmental problem-solving. The complexity of environmental challenges requires educational approaches developing systems thinking, critical analysis, and collaborative problem-solving skills that cannot be developed through traditional instruction alone.

How India Can Align Its Environmental Education with Global Trends

Adopting Experiential Learning

India can benefit significantly from experiential learning approaches connecting students with natural environments and real-world challenges. The country's diverse ecosystems provide rich opportunities for hands-on learning. Implementing school garden programs could provide practical learning while addressing nutritional challenges, integrating traditional agricultural knowledge with modern environmental science.

Partnerships with India's national parks and wildlife sanctuaries could provide authentic outdoor learning opportunities through field studies, citizen science projects, and conservation initiatives. Community-based environmental monitoring could engage students in documenting local challenges like air quality and water pollution while developing scientific literacy.

Fostering Critical Thinking

Developing critical thinking skills is essential for preparing students to navigate complex environmental challenges. India's system must move beyond rote memorization to analytical approaches developing evidence-based reasoning capabilities.

Case study approaches using Indian environmental challenges could help students develop analytical skills while learning locally relevant issues. Students could examine cases like the Chipko movement or urban air pollution, developing stakeholder analysis and solution assessment skills. Research projects requiring scientific investigation of local environmental conditions could build critical thinking while contributing to environmental knowledge.

Integrating Technology

Technology integration can enhance environmental education by providing access to global data, simulation tools, and collaborative platforms. Mobile applications could enable widespread citizen



science participation, while GIS technology could help students analyze environmental patterns at multiple scales.

Virtual reality experiences could provide access to learning opportunities physically or financially inaccessible to many students. Online collaboration platforms could connect Indian students globally in joint environmental projects, fostering international awareness while building cross-cultural communication skills.

Promoting Community Engagement

Community engagement represents a critical opportunity for enhancing effectiveness while addressing local challenges. India's strong community traditions provide foundations for meaningful community-based learning.

Partnerships with local environmental organizations and community leaders could provide authentic learning opportunities while building school-community relationships. Intergenerational learning programs could connect students with elders possessing traditional environmental knowledge, creating cultural knowledge transmission opportunities while building environmental awareness.

Emphasizing Sustainability and Circular Economy within the Curriculum

Sustainability and circular economy principles should permeate India's environmental education system, helping students understand interconnections between environmental, social, and economic systems while developing sustainable living competencies.

Life cycle thinking approaches could help students understand environmental impacts of products throughout their lifecycles. Waste reduction and circular economy projects could engage students in developing waste management solutions while learning about resource conservation. Systems thinking approaches could help students understand complex relationships between human activities and environmental systems.

Global Trends India Should Follow in Environmental Education

Fostering Critical Thinking and Problem Solving

India must prioritize critical thinking and problem-solving skills development to prepare students for complex environmental challenges. Inquiry-based learning approaches should encourage students to



formulate questions, design investigations, and draw evidence-based conclusions about environmental issues.

Problem-based learning scenarios using real Indian environmental challenges could engage students in collaborative problem-solving while building understanding of local issues. Design thinking approaches could engage students in developing innovative solutions following systematic processes emphasizing empathy, ideation, prototyping, and testing.

Adopting Experiential and Hands-On Learning

Experiential learning represents a fundamental shift toward engaging students directly with environmental systems and challenges. Outdoor education programs should utilize India's diverse geographic regions for authentic environmental learning experiences including field studies in forests, wetlands, mountains, and coastal areas.

Environmental restoration projects could engage students in hands-on conservation work while learning about ecosystem functioning. Students could participate in tree planting, wetland restoration, or habitat improvement projects creating tangible environmental benefits.

Using Technology and Digital Tools

Environmental monitoring technology should be integrated into curricula, teaching students to use sensors, data loggers, and analytical tools for investigating environmental conditions. Data visualization tools could help students understand complex environmental datasets and identify patterns.

Simulation software could enable students to explore environmental scenarios and test potential solutions in virtual environments. Global collaboration platforms could connect Indian students worldwide in joint environmental research and action projects.

Collaborating with Local Communities and Organizations

Environmental non-governmental organizations should be engaged as partners providing expertise, resources, and authentic project opportunities. Local government agencies could provide partnerships for environmental monitoring, policy analysis, and civic engagement projects.

Traditional knowledge holders should be recognized as valuable resources, providing opportunities for students to learn from community members with deep understanding of local environmental systems.



Community environmental groups could provide platforms for student engagement in local environmental action.

Integrating Sustainability and Circular Economy Principles

Systems thinking approaches should help students understand complex relationships between human activities and environmental systems. Life cycle assessment methodologies could be taught to help students understand environmental impacts of products throughout their lifecycles.

Sustainable design principles should be integrated into technology and engineering education, teaching students to consider environmental impacts in design processes. Economic literacy related to environmental issues should be developed, helping students understand economic dimensions of environmental challenges.

Emphasizing Teacher Capacity Building

Teacher capacity building represents a critical foundation for effective environmental education implementation. Pre-service teacher education programs must integrate comprehensive environmental education components preparing new teachers to deliver effective environmental instruction.

In-service professional development programs should support current teachers in developing environmental education competencies. Teacher networking opportunities should support peer learning and resource sharing among environmental educators.

Way Forward and India's Steps

India's path toward aligning with global environmental education trends requires systematic, coordinated efforts across multiple levels of the educational system and society. The country must develop comprehensive strategies that address policy, curriculum, teacher preparation, infrastructure, and community engagement dimensions of environmental education transformation.

Policy-level reforms should begin with updating national and state educational policies to reflect contemporary understanding of environmental education best practices and global trends. The National Education Policy 2020 provides a foundation for these reforms, but implementation guidelines and specific objectives must be developed to ensure effective translation from policy to practice.

Curriculum development efforts should focus on creating integrated, interdisciplinary environmental education approaches that connect environmental themes with all subject areas while maintaining



academic rigor and learning standards. These curricula should reflect Indian environmental challenges and cultural contexts while incorporating global environmental education trends and best practices.

Infrastructure investments should prioritize creating learning environments that support hands-on, experiential environmental learning. This includes developing outdoor learning spaces, environmental monitoring equipment, technology resources, and partnerships with environmental organizations and natural areas.

Teacher education reform represents a critical priority for environmental education improvement in India. Both pre-service and in-service teacher education programs must be enhanced to ensure that teachers possess the content knowledge, pedagogical skills, and confidence necessary for effective environmental education delivery.

Community engagement strategies should be developed to connect schools with local communities, environmental organizations, and governmental agencies in collaborative environmental education and action initiatives. These partnerships should honor traditional environmental knowledge while promoting contemporary environmental awareness and action.

Assessment and evaluation systems should be developed to monitor environmental education effectiveness and guide continuous improvement efforts. These systems should measure not only environmental knowledge acquisition but also skill development, attitude formation, and behavioural change related to environmental stewardship.

Funding mechanisms should be established to support environmental education infrastructure, professional development, community partnerships, and innovative program development. These mechanisms should include governmental funding, private sector partnerships and international development assistance where appropriate.

Research and development efforts should be supported to generate evidence about effective environmental education approaches in Indian contexts and to adapt global best practices for Indian implementation. Universities and research institutions should be engaged in studying environmental education effectiveness and developing culturally appropriate innovations.

Conclusion

The transformation of environmental education represents both an urgent necessity and a remarkable opportunity for India's educational system and society. As environmental challenges intensify globally



and nationally, the need for environmentally literate and engaged citizens becomes increasingly critical for India's sustainable development and wellbeing.

Global trends in environmental education offer valuable guidance for India's environmental education development, providing evidence-based approaches that have demonstrated effectiveness in diverse contexts. The integration of experiential learning, technology, community engagement, and critical thinking approaches represents essential elements for effective environmental education in the 21st century.

India's unique cultural heritage, diverse ecosystems, and community traditions provide distinctive opportunities for environmental education innovation that could contribute to global environmental education knowledge while addressing the country's specific environmental challenges. The integration of traditional ecological knowledge with contemporary environmental science could create particularly powerful learning approaches that honor India's heritage while preparing students for contemporary environmental challenges.

The success of environmental education transformation in India will require sustained commitment from educators, policymakers, communities, and students themselves. This transformation cannot be achieved through superficial curriculum changes or isolated program initiatives but requires comprehensive, systemic approaches that address all dimensions of educational change.

The stakes for environmental education success in India extend far beyond the educational system itself. Given India's population size, environmental challenges, and development trajectory, the country's environmental education efforts will significantly influence global environmental outcomes. Effective environmental education in India could contribute to global environmental solutions while improving the lives of hundreds of millions of people.

As India moves forward with environmental education transformation, the country has the opportunity to become a global leader in environmental education innovation, demonstrating how large, diverse, developing nations can successfully integrate environmental education throughout their educational systems. This leadership potential creates additional motivation for pursuing comprehensive environmental education reform that aligns with global trends while addressing India's unique contexts and challenges.

The footsteps that India chooses to follow in global environmental education trends will ultimately determine whether the country's young people are prepared to address the environmental challenges they



will inherit and whether India can contribute to the global environmental solutions that our interconnected world desperately needs. The time for comprehensive environmental education transformation is now, and India has both the opportunity and the responsibility to act decisively in creating an environmentally literate and engaged citizenry for the 21st century and beyond.

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