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Enhancing Environmental Awareness Through Action-Based Activities: A Study Of Secondary School Students In Gujarat

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Abstract

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Environmental awareness is a critical prerequisite for sustainable behaviour among adolescents. This paper examines the effectiveness of various school-based activities—such as Eco-Clubs, nature camps, and waste management audits—in enhancing secondary school students' environmental consciousness in Gujarat. Research indicates that while theoretical knowledge is prevalent, participatory activities significantly bridge the gap between awareness and action. The study suggests that institutionalised initiatives such as the Green Schools Programme and GEER Foundation camps are vital for fostering long-term pro-environmental habits. Environmental awareness is a critical prerequisite for sustainable behaviour among adolescents. This paper examines the effectiveness of various school-based activities—such as Eco-Clubs, nature camps, and waste management audits—in enhancing secondary school students' environmental consciousness in Gujarat. Research indicates that while theoretical knowledge is prevalent, participatory activities significantly bridge the gap between awareness and action. The study suggests that institutionalised initiatives like the Green Schools Programme and GEER Foundation camps are vital for fostering long-term pro-environmental habits.

1. Introduction

The rapid escalation of global environmental challenges, including climate change, biodiversity loss, and resource depletion, has positioned ecological sustainability as a primary concern for 21st-century education. In this context, the role of the youth—specifically secondary school students—is paramount. As adolescents, these students are in a critical developmental phase where their cognitive abilities, social values, and long-term habits are being solidified (Enviro-Biotech Journals, 2022). Consequently, secondary schools are an ideal environment for fostering environmental awareness, defined not only as possessing ecological knowledge but also as developing a sensitive attitude and a sense of responsibility toward the natural world.

In India, the National Education Policy (NEP) 2020 and various state-level mandates have integrated Environmental Education (EE) into the core curriculum. However, academic research frequently highlights a "value-action gap" or cognitive dissonance among students: while many possess high levels of theoretical knowledge about global issues such as the greenhouse effect, their daily behaviours often lack sustainable practices, such as waste segregation or energy conservation. This gap suggests that traditional, lecture-based pedagogy is insufficient to drive genuine behavioural change.

The state of Gujarat presents a unique case study for environmental intervention. As a rapidly industrialising state with diverse ecological zones, ranging from the Rann of Kutch to the Gir forests, Gujarat faces significant ecological pressures. To address this, the state has pioneered several action-oriented initiatives targeting secondary students. Programs led by the GEER Foundation and the Gujarat Council on Science and Technology (GUJCOST) emphasise experiential learning through nature camps, Eco-Clubs, and hands-on science projects. These activities are designed to transform students from passive recipients of information into active "environmental stewards" who can influence their families and local communities.

Despite these efforts, there remains a need to systematically evaluate which specific activities are most effective in enhancing awareness. This paper examines the landscape of environmental activities in Gujarat's secondary schools, assessing how participatory models—such as the Green Schools Programme—shape students' attitudes and behaviours. By analysing these interventions, this research aims to provide a framework for educational practices that effectively bridge the gap between ecological literacy and pro-environmental action.

Environmental degradation has necessitated a shift in educational paradigms toward sustainability. In India, and specifically in Gujarat, secondary school students constitute a critical demographic for ecological interventions, as they are in a transitional stage of value formation. While the state curriculum includes environmental education, research suggests that traditional classroom methods often fail to translate into behavioural changes. This paper explores how specific, action-oriented activities can enhance ecological awareness and responsibility.

2. Research Objectives

The primary purpose of this research is to evaluate the efficacy of diverse school-based interventions in fostering environmental consciousness among secondary students. Specifically, the paper seeks to achieve the following objectives:

1. To identify and categorise the primary school-based activities (such as Eco-Clubs, nature camps, and waste audits) currently implemented in Gujarat to enhance environmental awareness.

2. To analyse the impact of experiential learning and field-based activities on the environmental knowledge and attitudes of Grade IX and X students.

3. To examine the relationship between student participation in environmental initiatives and their subsequent behavioural changes at home and in the community.

4. To evaluate the role of institutional frameworks, such as the GEER Foundation and the Green Schools Programme, in standardising environmental education across private and government schools in Gujarat.

5. To provide actionable recommendations for educators and policymakers to bridge the gap between theoretical environmental knowledge and practical conservation habits.

3. Research Gap: Literature Review

The Value-Action Gap in Environmental Education

Environmental awareness is considered a critical prerequisite for fostering sustainable behaviour among adolescents. Research indicates that secondary school students are in a vital developmental phase in which their social values and long-term habits are established, making schools an ideal environment for ecological interventions.

However, a persistent "value-action gap" is frequently observed in academic research. While many students possess high levels of theoretical knowledge about global issues such as the greenhouse effect, this knowledge often fails to translate into practical, everyday sustainable practices, such as waste segregation or energy conservation. This suggests that traditional, lecture-based pedagogy is insufficient to drive genuine behavioural change.

The Role of Participatory Learning and Action

To address this gap, educational paradigms must shift toward action-oriented activities. Environmental awareness, in this context, is a multidimensional construct that incorporates cognitive understanding, an affective dimension (nature empathy), and a conative dimension (readiness to act).

Action-oriented initiatives, such as Eco-Clubs and nature camps, have been effective in Gujarat by emphasising experiential learning and transforming students from passive recipients of information into active "environmental stewards". Specific activities found to be highly effective include:

- Waste Management Audits: Projects in schools like Gajera International have students manage "single-use plastic-free zones" and calculate their school's trash footprint, leading to proposed reduction strategies.
- Experiential Learning: Hands-on activities like vermi-composting, organic gardening, and learning to read electricity bills improve environmental literacy more effectively than lectures alone.
- Creative and Communicative Activities: Role-playing debates and Nukkad Nataks (street plays) focus on the affective dimension, building empathy and advocacy skills crucial for community outreach.

Institutional Frameworks for Standardisation

Various state-level mandates in India, including the National Education Policy (NEP) 2020, have integrated environmental education into the core curriculum. Structured platforms provided by governmental bodies and NGOs, such as the GEER Foundation's nature education camps and the Green Schools Programme, are vital for fostering long-term pro-environmental habits and standardising environmental education across different types of schools.

4. Define environmental awareness

In the context of environmental psychology and education, environmental awareness is defined as the combination of knowledge, sensitivity, and conscious concern regarding the relationship between humans and the natural world.

According to UNESCO and the Tbilisi Declaration, environmental awareness is not merely the accumulation of facts; rather, it is a multi-dimensional construct consisting of:

- **Cognitive Dimension:** Understanding the fundamental scientific principles of ecosystems, the causes of environmental degradation (e.g., climate change, pollution), and the potential solutions.
- **Affective Dimension:** Developing a sense of "nature empathy" or emotional connection to the environment, which leads to a value-based concern for the protection of biodiversity.
- **Conative (Behavioural) Dimension**: The readiness to act and the internal motivation to adopt sustainable habits, such as reducing waste or conserving water.

In the National Education Policy (NEP) 2020 framework, environmental awareness for secondary students in India is framed as "Environmental Stewardship." This emphasises that awareness is achieved when a

student recognises their personal impact on the planet and feels empowered to mitigate environmental harm through informed decision-making.

5. The role of agencies in environmental awareness

The Role of Eco-Clubs and Participatory Learning

A primary vehicle for awareness in Gujarat is the Eco-Club (or Youth Club). These forums move beyond theoretical instruction to provide "sustainability in action".

- Waste Management and Audits: Schools like Gajera International in Surat have successfully implemented projects where students manage "single-use plastic-free zones" and conduct audits on waste generation.
- Experiential Learning: Activities such as vermi-composting and organic gardening allow students to observe ecological cycles firsthand. This "learning by doing" approach has been shown to improve environmental literacy more effectively than lectures alone.

Institutional Initiatives in Gujarat

The state government and various NGOs provide structured platforms for these activities:

- **Nature Education Camps:** The GEER Foundation organises camps in protected areas, which help students develop an emotional connection to biodiversity.
- **Green Schools Programme:** This initiative involves students in auditing their school's resource consumption (water, energy, and air), fostering a sense of ownership over the campus environment.
- **Community Outreach:** Students in Gujarat frequently participate in Earth Day rallies and nukkad nataks (street plays) to spread awareness to their local communities, which reinforces their own understanding through teaching others.

6. Factors Influencing Activity Success

Research in cities like Ahmedabad and Vadodara shows that external variables often influence the success of these activities:

- **Grade Level:** Students in Grade X typically show higher awareness scores than those in Grade IX, suggesting that consistent exposure to environmental activities over time yields better results.
- **School Management:** While technical knowledge may be higher in private schools, students in government-aided schools often exhibit higher participation rates in community-based cleaning and plantation drives.

7. Classroom activities to enhance environmental awareness

Shifting from rote memorisation to Active Learning Strategies (ALS). These activities are designed to be low-cost, curriculum-integrated, and highly engaging for secondary students.

1. Investigative & Data-Driven Activities

These activities use the classroom as a laboratory to analyse real-world environmental data.

- Waste Audit Challenge: Students collect and weigh the dry and wet waste generated in their classroom for one week. Using these data, they calculate the school's monthly "trash footprint" and propose reduction strategies to the principal.

- Energy Detectives: Students learn to read GUVNL (Gujarat Urja Vikas Nigam Limited) electricity bills. They identify "energy vampires" (appliances left on standby) in the classroom and create a "Switch-Off" duty roster.

- Carbon Footprint Calculators: Using digital tools, students calculate the carbon emissions of their daily commute (e.g., school bus vs. bicycle) to understand the impact of transport choices.

2. Creative & Communicative Activities

These activities focus on the affective dimension of awareness—building empathy and advocacy skills.

- Environmental "Nukkad Natak" Scripts: Students write and rehearse short street plays in the classroom. Themes often include the "Plastic-Free Gujarat" initiative or water conservation in arid regions like Kutch.

- **Upcycling Workshops:** A "Trash-to-Treasure" corner where students transform waste materials (old newspapers, plastic bottles) into functional classroom items like pen stands or organisers.

- **Role-Playing Debates:** Students role-play a town hall meeting where a new factory is being built near a forest. They act as "Villagers," "Factory Owners," and "Environmentalists" to understand the complexity of Sustainable Development.

3. Nature-Integrated Classroom Activities

Even without leaving the room, students can connect with biological processes.

- Vertical Bottle Gardens: Utilising classroom windows to grow herbs or local plants in reused plastic bottles. This teaches students about drip irrigation and urban farming.

- Micro-Biodiversity Journals: Students observe a 1x1 meter patch of the school ground (or even classroom corners) and document every living thing they see—insects, moss, or birds—fostering a "Scientific Temper" as encouraged by GUJCOST.

- Documentary & Discussion: Watching localised environmental films (e.g., on the Gir Forest or the Sabarmati River) followed by a Socratic seminar where students discuss root causes and local solutions.

4. Digital & Game-Based Learning

- Environmental Quiz Competitions: Weekly "Green Quizzes" using platforms like Kahoot! centred on current environmental news in India and Gujarat.

- Virtual Field Trips: Using VR or interactive maps to explore Gujarat's Marine National Park without leaving their desks, making conservation feel tangible for students in landlocked districts.

Impact on Research Objectives

Integrating these activities into the classroom directly addresses the "Knowledge-Action Gap" found in Gujarat's secondary schools. By making environmentalism a daily classroom habit rather than a yearly event (like Van Mahotsav), students develop a sustained pro-environmental identity.

8. Conclusion

To effectively enhance environmental awareness, schools must adopt a participatory model that integrates hands-on projects with the core curriculum. In Gujarat, the success of Eco-Clubs and nature camps demonstrates that students' awareness and sense of responsibility significantly increase when they are actively involved in solving local environmental problems. This approach helps bridge the gap between theoretical knowledge and practical conservation habits by fostering a sustained pro-environmental identity. The study suggests that institutional initiatives such as the Green Schools Programme and GEER Foundation

camps are vital for promoting long-term pro-environmental habits. Future research could explore how these findings relate to other regions with different ecological pressures or educational policies.

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