



RESEARCH ARTICLE

Fostering Environmental Literacy through the Curriculum at School Level: NEP 2020's Approach and its Implications

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Abstract

Environmental literacy is essential for individuals to comprehend, appreciate, and appropriately solve the urgent environmental issues affecting our globe. In India, the National Education Policy (NEP) 2020 acknowledges the value of instilling environmental consciousness and sustainability in students at a young age. This study examines how NEP 2020 anticipates the inclusion of environmental literacy in the overall school curriculum and considers any potential effects on students, teachers, and the community at large. This article intends to identify the policy's goals, tactics, and expected effects on students' environmental consciousness by scrutinising the clauses and suggestions in NEP 2020 that pertain to environmental education at the school level. The article further explores the application of curricular adaptation, instructional strategies, and evaluation tools intended to advance environmental literacy. By closely examining the provisions and recommendations in NEP 2020 that relate to environmental education at the school level, this paper seeks to establish the policy's objectives, strategies, and anticipated consequences on students' environmental consciousness. The article investigates the use of curriculum modification, teaching techniques, and assessment instruments designed to enhance environmental literacy. The preliminary findings suggest that NEP 2020's approach to fostering environmental literacy through the curriculum has the potential to create environmentally conscious citizens who recognize the interdependence between humans and the environment. Further observations suggest that the alignment of this approach with global trends in education emphasizes sustainability, citizenship, and the need for a comprehensive understanding of environmental issues.

Keywords: Environmental literacy; NEP 2020; environmental education; school education; curriculum; SDGs

INTRODUCTION

Environmental literacy is the ability to understand, appreciate, and act on environmental issues in a responsible and sustainable manner. It is a crucial component of education for sustainable development, which aims to empower learners to make informed decisions and actions for environmental integrity, economic viability, and a just society. Environmental literacy is also aligned with the United Nations' Sustainable Development Goals (SDGs), especially SDG 4, which seeks to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all (UN, 2015). It addresses the global challenges of climate change, biodiversity loss, pollution, and resource depletion. Environmental literacy also contributes to the development of critical thinking, problem-solving,

creativity, and civic engagement skills among learners (Kumar, Prakash and Singh, 2021).

In India, environmental education has been a part of the school curriculum since the 1980s, following the recommendations of the National Policy on Education (NPE) 1986. However, the implementation of environmental education has been largely ineffective and inadequate, due to various challenges such as lack of trained teachers, appropriate pedagogy, relevant resources, and assessment tools. Moreover, environmental education has been largely confined to theoretical knowledge and awareness, without much emphasis on developing skills, values, and attitudes for environmental action (Erhabor & Don, 2016).

The National Education Policy (NEP) 2020, which was approved by the Union Cabinet of India on 29 July 2020, outlines the vision of a new education system that aims to address the many growing developmental imperatives of the country and is aligned to the 2030 Agenda for Sustainable Development. The NEP 2020 proposes several changes and reforms in the school education sector, including the revision and revamping of the curriculum and pedagogy, the restructuring and consolidation of school complexes, the enhancement of teacher education and professional development, and the transformation of the assessment system. The National Education Policy

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(NEP) 2020 is a visionary document that aims to transform the Indian education system and make it more holistic, multidisciplinary, flexible, and learner-centric. One of the key features of NEP 2020 is the integration of environmental education across the curriculum at all levels of school education. NEP 2020 recognizes the importance of making environmental education an integral part of curricula and encouraging environmental awareness and sensitivity among students. NEP 2020 also advocates for the attainment of holistic and multidisciplinary education, through flexible and innovative curricula that include credit-based courses and projects in the areas of community engagement and service, environmental education, and value-based education.

The policy while emphasising on fostering environmental literacy states that "environmental issues will be infused into all subjects across all levels" and that "environmental education will be integrated into teacher education as well" (Dhull and Verma, 2017). The policy also envisages that "students will be involved in hands-on projects related to environmental conservation throughout their schooling". The policy further suggests that "the curriculum will include basic issues of health and nutrition, physical fitness, wellness, and mental health; as well as important issues such as water conservation, cleanliness, hygiene, waste management, and sanitation; including appropriate behaviour in society and with others".

With this viewpoint, this paper aims to review the approach and implications of fostering environmental literacy through the curriculum at the school level as proposed by the NEP 2020. The paper first discusses the conceptual framework of environmental literacy and its dimensions. It describes the salient features of NEP 2020 related to environmental education and its alignment with the global education development agenda. Then, it analyses the key features of the NEP 2020 related to environmental literacy and compares them with the existing practices and challenges in India in terms of curriculum design, pedagogy, assessment, teacher education, and institutional support. Finally, it will highlight some of the opportunities and recommendations for effective implementation of environmental literacy in schools.

Methodology

This paper is based on a review of relevant literature, including policy documents, research articles, reports, and websites. The paper adopts a descriptive and analytical approach to examine the NEP 2020's approach to environmental literacy in schools. The paper uses a thematic analysis method to identify and compare the main themes and sub-themes related to environmental literacy in the NEP 2020 and other sources. To discuss upon the following documents have been critically analysed:

- National Education Policy 2020
- Draft Guidelines and Curriculum Framework for Environment Education at Undergraduate level
- Curriculum and Credit Framework for Undergraduate Programmes
- UNESCO's Education for Sustainable Development Goals: Learning Objectives
- UNESCO's Global Citizenship Education: Topics and Learning Objectives
- UNESCO's Education 2030: Incheon Declaration and Framework for Action

Conceptual Framework of Environmental Literacy

Environmental literacy refers to an individual's understanding, skills and motivation to make responsible decisions that consider his or her relationships with natural systems, communities and future generations (Fang, Hassan and LePage, 2023). Environmental literacy is not only about acquiring factual knowledge about environmental issues but also about developing critical thinking skills, values, attitudes, and behaviours that enable one to participate in environmental problem-solving and action (Taimur and Sattar, 2020).

It can be conceptualized as having four interrelated dimensions: cognitive, affective, behavioural, and experiential (Wilke, 1995). The cognitive dimension refers to the knowledge and understanding of environmental concepts, principles, issues, systems, and interrelationships. The affective dimension refers to the feelings, emotions, values, attitudes, and motivations that influence one's perception and response to environmental issues. The behavioural dimension refers to the skills and actions that one can apply to prevent, reduce, or solve environmental problems. The experiential dimension refers to the opportunities and experiences that one can have to interact with and learn from the natural and social environment. The four dimensions of environmental literacy are not mutually exclusive but rather complementary and interdependent. They form a continuum that can be developed progressively from basic to advanced levels. The development of environmental literacy also depends on various factors such as the individual's background, context, interests, needs, and goals.

NEP 2020's Approach to Environmental Literacy in Schools

The NEP 2020 has proposed a comprehensive and integrated approach to fostering environmental literacy in schools. The policy has recognized the importance of environmental education for achieving the national and global goals of sustainable development and environmental justice. It has also acknowledged the need to reform and revitalize the existing curriculum and pedagogy to make them more relevant, engaging, and effective for environmental learning. It has further emphasized the role of teachers, school complexes, and assessment systems in facilitating and enhancing environmental literacy among students.

The following are some of the key features of the NEP 2020's approach to environmental literacy in schools:

- **Infusing environmental issues into all subjects across all levels:** The policy states that "environmental issues will be infused into all subjects across all levels". This implies that environmental education will not be treated as a separate or optional subject but rather as a cross-curricular theme that will be integrated into the core subjects such as languages, mathematics, sciences, social sciences, arts, and physical education. This will help students develop a holistic and multidisciplinary perspective on environmental issues and their connections with various disciplines and domains of knowledge. This will also help students acquire the relevant knowledge, skills, values, and attitudes for environmental literacy coherently and consistently.

- **Integrating environmental education into teacher education:** The policy paves the way to integrate environmental education into teacher education as well. This implies that teacher education programs will include environmental education as a compulsory component that will equip teachers with the necessary knowledge, skills, values, attitudes, and pedagogical strategies for teaching environmental issues effectively. This will also help teachers to develop their own environmental literacy and awareness and to act as role models and facilitators for their students. Moreover, teacher education programs will also provide opportunities for teachers to engage in continuous professional development and collaborative learning on environmental education.
- **Involving students in hands-on projects related to environmental conservation:** The policy mentions that "students will be involved in hands-on projects related to environmental conservation throughout their schooling". This implies that students will have ample opportunities to participate in experiential learning activities that will enable them to apply their knowledge and skills to real-life situations and problems related to the environment. These activities may include field trips, surveys, experiments, observations, investigations, case studies, simulations, games, debates, presentations, exhibitions, campaigns, etc. These activities will also help students to develop their creativity, critical thinking, problem-solving, communication, collaboration, and leadership skills.
- **Including basic issues of health and nutrition, physical fitness, wellness, and mental health:** The policy makes a provision that the curriculum will include basic issues of health and nutrition, physical fitness, wellness, and mental health; as well as important issues such as water conservation, cleanliness, hygiene, waste management, and sanitation; including appropriate behaviour in society and with others". This implies that the curriculum will cover a wide range of topics that are relevant and essential for the well-being of the individual, society, and the environment. These topics will help students to understand the interdependence and interrelationship between human health and environmental health and to adopt healthy and sustainable lifestyles and practices.

Comparison with Existing Practices and Challenges

The NEP 2020's approach to environmental literacy in schools is a significant departure from the existing practices and challenges in India. The existing practices and challenges can be summarized as follows:

- **Lack of integration of environmental issues into all subjects across all levels:** Environmental education is currently offered as a separate subject at the secondary level under the name of Environmental Studies (EVS) or Environmental Science (ES). However, this subject is often seen as less important or less interesting than other subjects by both teachers and students (Ravindranath, 2007). Moreover, there is little or no integration of environmental issues into other

subjects at any level. This results in a fragmented and superficial understanding of environmental issues among students.

- **Lack of integration of environmental education into teacher education:** Teacher education programs do not adequately prepare teachers for teaching environmental issues effectively. There is a lack of adequate content knowledge, pedagogical skills, values, attitudes, and resources for teaching environmental issues among teachers (Ravindranath, 2007). Moreover, there is a lack of opportunities for continuous professional development and collaborative learning on environmental education among teachers.
- **Lack of involvement of students in hands-on projects related to environmental conservation:** Students do not have enough opportunities to participate in experiential learning activities that enable them to apply their knowledge and skills to real-life situations.

Comparing and Contrasting three NEPs' Approach to Environmental Education

The NEP 1968 did not explicitly mention environmental education as a separate component of the curriculum, but it did emphasize the need for developing an awareness of the natural environment and its conservation among the students. The NEP 1986 introduced environmental education as a contemporary subject at relevant stages of school education and also incorporated traditional Indian knowledge systems and India's future aspirations with regard to the environment in the curricula. The NEP 2020 further strengthened environmental education by making it an integral part of school curricula across all subjects and stages and also inculcating respect for the environment and sustainable development in all B.Ed programmes.

In contrast to the earlier two national policies on education, this policy stands out on certain factors as below:

- **Curriculum design:** The NEP 1968 did not have a clear framework for curriculum design, and left it to the discretion of the states and the boards of education (Sundaram, (2020). The NEP 1986 proposed a national core curriculum at the secondary stage, comprising language, mathematics, science, social sciences, and work experience (Raina, 2020). The NEP 2020 recommends a national curriculum framework for school education, based on the principles of multidisciplinary, experiential, holistic, inquiry-based, discovery-oriented, learner-centred, discussion-based, flexible, and enjoyable learning.
- **Curriculum content:** The NEP 1968 did not specify the content of environmental education, but suggested that it should be related to the local environment and its problems (Sundaram, (2020). The NEP 1986 suggested that environmental education should include the following themes: natural resources, population and development, biodiversity and conservation, environmental health, environmental pollution and degradation, environmental values and ethics, environmental legislation and policies, and environmental action (Sharma, 2020). The NEP 2020 suggests that environmental education should cover the following themes: climate change and

sustainability, renewable energy sources and green technologies, water conservation and management, waste management and circular economy, air quality and pollution prevention, biodiversity and ecosystem services, disaster management and resilience building, green skills and livelihoods, environmental justice and human rights, and global citizenship and international cooperation (Sharma, 2020).

- **Curriculum transaction:** The NEP 1968 did not prescribe any specific pedagogy or methodology for environmental education, but emphasized the role of teachers in creating interest and awareness among the students (Sundaram, 2020). The NEP 1986 recommended that environmental education should be transacted through various modes such as projects, field visits, experiments, surveys, case studies, role plays, debates, etc (Sharma, 2020). The NEP 2020 suggests that environmental education should be transacted through various modes such as experiential learning, hands-on activities, problem-solving tasks, collaborative learning, digital tools and resources, etc.

Findings:

NEP 2020, thus, is found to have envisioned a paradigm shift in the Indian education system from rote learning to experiential learning, from fragmentation to integration, from rigidity to flexibility, from prescription to choose, from memorization to understanding, from passive to active learning, and from examination to exploration. NEP 2020 has proposed several reforms and innovations in the school curriculum that aim to foster environmental literacy among students.

- **Early Childhood Care and Education (ECCE):** It emphasizes the importance of providing quality ECCE for all children between the ages of 3-6 years. ECCE will be based on a play-based, activity-based, and discovery-based pedagogy that will nurture the cognitive, socio-emotional, physical, cultural, and artistic development of children. ECCE also introduces children to the natural world and instill a sense of curiosity, wonder, respect, and care for it.
- **Foundational Literacy and Numeracy (FLN):** The policy identifies FLN as an urgent and necessary prerequisite for learning. FLN can be achieved by ensuring that every child can read with comprehension, write with clarity, communicate effectively, perform basic mathematical operations, reason logically, apply scientific concepts, appreciate arts and culture, and use digital tools by Grade 3. FLN also includes environmental awareness as a core component of literacy and numeracy skills.
- **Universal Access to Education:** The policy further aims to ensure universal access to quality education for all children up to Grade 12. It proposes various measures to curtail dropout rates and increase retention rates among students from disadvantaged groups such as girls, socio-economically backward classes (SEBCs), scheduled castes (SCs), scheduled tribes (STs), persons with disabilities (PwDs), transgender persons (TGs), migrants, urban poor, and rural areas (Saluja, 2023). It advocates for providing equitable opportunities for learning to all

students regardless of their backgrounds or abilities and recognizes that environmental issues affect different groups differently and calls for addressing them through inclusive and participatory approaches.

- **Curriculum and Pedagogy:** It proposes a major overhaul of the school curriculum and pedagogy to make it more holistic, integrated, enjoyable, and engaging. It suggests reducing the curriculum load to the essential core concepts and skills and increasing the time for experiential learning, project-based learning, inquiry-based learning, problem-based learning, collaborative learning, and service learning. It also recommends integrating environmental education across the curriculum in all subjects and grades. It envisages a multidisciplinary and interdisciplinary approach to learning that will enable students to connect the dots between different domains of knowledge and understand the interrelationships between human and natural systems. It also emphasizes the development of 21st-century skills such as critical thinking, creativity, communication, collaboration, digital literacy, and global citizenship among students and advocates for a learner-centric pedagogy that will cater to the diverse needs, interests, abilities, and learning styles of students. It also promotes a culture of exploration, discovery, innovation, and expression among students. It encourages the use of local languages, contexts, examples, and resources to make learning more relevant and meaningful for students and also supports the use of technology as an enabler and enhancer of learning (Sonowal, 2017).
- **Assessment:** The policy proposes a radical transformation of the assessment system from a high-stakes, summative, one-size-fits-all approach to a low-stakes, formative, continuous, comprehensive, adaptive, and flexible approach. It has shifted the focus of assessment from testing rote memorization to assessing higher-order skills such as application, analysis, synthesis, evaluation, and creation. It intends to make assessment more holistic by measuring not only cognitive but also affective and psychomotor domains of learning. Using multiple modes and methods such as portfolios, projects, presentations, performances, exhibitions, demonstrations, peer reviews, self-reviews, etc. intends to make assessment more authentic. It also envisages a paradigm shift from assessment of learning to assessment for learning and assessment as learning. It also recommends incorporating environmental education as an integral part of the assessment framework and criteria.
- **Teachers:** The policy acknowledges the pivotal role of teachers in ensuring quality education for all students and has thus proposed several initiatives to enhance recruitment, training, motivation, empowerment, and professional development. It, thus, advocates for attracting meritorious and passionate candidates to the teaching profession by offering attractive incentives and career prospects. The policy also suggests improving the quality and standards of teacher education by ensuring that all teacher education programs are multidisciplinary,

integrated with school education programs, aligned with the National Professional Standards for Teachers (NPST), accredited by an independent body, and delivered through face-to-face or blended modes. It has also emphasized the need for providing continuous in-service training and support to teachers through online platforms, mentoring networks, resource centres, and communities of practice. It has also envisaged creating a conducive environment for teachers to exercise their autonomy, creativity, innovation, and leadership in curriculum design, pedagogy, assessment, and school management. It also recognizes the importance of equipping teachers with the knowledge, skills, attitudes, and values required for fostering environmental literacy among students.

Implications of NEP 2020 for Environmental Literacy

From the context presented above, it is evident that NEP 2020 is very comprehensive and ambitious. Realizing the present and future needs of learners, society and nation, has several implications for enhancing environmental literacy among school students. NEP 2020 is aligned with the global education development agenda reflected in SDG4 and its targets. SDG4 seeks to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all by 2030. One of the targets of SDG4 is to ensure that all learners acquire the knowledge and skills needed to promote sustainable development by 2030. This includes education for sustainable development (ESD) and global citizenship education (GCED) as key elements of quality education. ESD aims to empower learners to make informed decisions and responsible actions for environmental integrity, economic viability, and a just society for present and future generations. GCED aims to nurture learners' sense of belonging to a common humanity and foster respect for human rights, diversity, and culture. Both ESD and GCED emphasize the development of cognitive, socio-emotional, and behavioural competencies that enable learners to contribute to local and global solutions for sustainable development.

UNESCO has developed a set of learning objectives for ESD and GCED that provide guidance for curriculum developers, teachers, and learners on what to learn and how to learn about these topics. NEP 2020 is consistent with these learning objectives and provides an opportunity for India to implement them in its school curriculum..

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