



Study of Inculcation of Value Education from the Perspective of NEP 2020 in the Draft of Curriculum and Syllabus of Science for School Education in Maharashtra

Dr. Prachi Rahul Chaudhary

Assistant Teacher, B.M.W. Sevasadan Adhyapika Vidyalay, Pune, Maharashtra
Email: prachirchaudhary@gmail.com

Abstract:

Science education plays a crucial role in developing intellectual, moral, social, environmental, and national values among students. It helps learners become rational thinkers, responsible citizens, and environmentally conscious individuals as envisioned in NEP 2020. The National Education Policy (NEP) 2020 emphasizes holistic development of learners through integration of cognitive, affective, and ethical dimensions of education. Science education, traditionally viewed as a content-driven discipline, is re-envisioned as a powerful medium for inculcating values such as scientific temper, environmental responsibility, ethical reasoning, and social sensitivity. Furthermore, science also instills values such as Scientific Temper, Curiosity, Critical Thinking, Logical Reasoning, Objectivity, Open-mindedness, Creativity and Innovation, Problem Solving Ability, Decision Making Skill, Honesty and Integrity, Responsibility, Self-discipline, Conservation of Resources, Sustainable Development, Respect for Life and Biodiversity, Safety Awareness, Ethical Awareness, Social Responsibility, Civic Sense, National Pride (Scientific Heritage), Respect for Indian Knowledge Systems. The Government of Maharashtra, through SCERT, has prepared a draft curriculum and syllabus for school science education aligned with NEP 2020. The present study aims to examine the extent and nature of value education embedded in the draft science curriculum and syllabus for school education in Maharashtra. Using qualitative document analysis, the study identifies key values integrated across objectives, content, pedagogy, and assessment practices. The findings reveal that the draft curriculum consciously incorporates value education through experiential learning, environmental themes, ethical discussions, and Indian Knowledge Systems. The study concludes that science education in Maharashtra, as envisioned in the draft curriculum, significantly supports the value-based and holistic vision of NEP 2020.

Keywords: School Education, Science Education, NEP 2020, Value Education, Maharashtra State Curriculum - Science Curriculum Draft 2025.

Introduction:

Education in the 21st century is no longer confined to academic achievement alone. The National Education Policy 2020 advocates for an education system that develops not only knowledge and skills but also values, ethics, and character. Science education, under NEP 2020, is expected to promote scientific temper, critical thinking, environmental awareness, and responsible citizenship. Maharashtra has initiated reforms in school

education by drafting a new science curriculum and syllabus aligned with the NEP 2020 framework and the 5+3+3+4 structure. This draft curriculum emphasizes competency-based learning, experiential pedagogy, interdisciplinary approach, and integration of values. In this context, it becomes essential to study how value education is incorporated within the science curriculum at the school level.

NEP 2020 defines value education as the development of ethical, moral, constitutional, and human values such as honesty, responsibility, empathy, and respect for diversity, environmental consciousness, and scientific temper. The policy highlights that values should not be taught as a separate subject but integrated organically across all disciplines, including science.

Science education is uniquely positioned to inculcate values through inquiry, experimentation, problem-solving, and real-life applications. Concepts related to environment, health, technology, and sustainability naturally lend themselves to value-based discussions and responsible action. Although NEP 2020 strongly advocates value integration, its practical realization depends on curriculum design and classroom implementation. Analyzing the draft science curriculum 2025 for Maharashtra provides insight into how policy intentions are translated into curricular components. The study is significant for curriculum developers, teacher educators, and researchers concerned with value-based education.

Objectives:

1. To study the concept of value education as mentioned in NEP 2020.
2. To analyze the draft of Maharashtra state curriculum - Science Curriculum draft 2025 from the perspective of value education.
3. To identify types of values embedded in the draft of science curriculum 2025.
4. To examine pedagogical approaches suggested for value inculcation through the draft of science curriculum 2025.

Methodology- The methodology used in present study is qualitative descriptive research design.

Method- Document Analysis:

Sources of Data- Draft Curriculum and Syllabus of Science for School Education (Std. 3–10) 2025, Maharashtra SCERT; NEP 2020 document, NCF-School Education, SCF-School Education

Tools- Content analysis framework focusing on objectives, themes, pedagogy and assessment

- Values Reflected in the Draft Science Curriculum 2025

The analysis of the Draft Science Curriculum 2025 for school education in Maharashtra reveals a purposeful and balanced integration of value education, in line with the vision of NEP 2020. Both explicit and implicit values are embedded across learning outcomes, thematic content, classroom activities, and project-based work. Values such as scientific temper, curiosity, critical and logical thinking, honesty, responsibility, cooperation, environmental awareness, sustainability, ethical awareness, and respect for Indian Knowledge Systems are naturally integrated through inquiry-based learning, experiments, discussions, and community-linked projects. This approach ensures that science education not only develops conceptual understanding but also nurtures responsible, ethical, and socially conscious learners.

Values Integrated in the Draft Science Curriculum 2025

Values	Sub-values	Few Examples from draft of Science Curriculum 2025
Intellectual Values	Scientific temper, curiosity, critical thinking	Our planet Earth, Sun, Moon, Nature of animals, plants, birds while sunset and sunrise
Moral & Ethical Values	Honesty in experimentation, ethical use of science	Indian space mission, Water supply for rural and urban areas, germination of seeds
Environmental Values	Conservation, sustainability, biodiversity	Plants, animals, birds, insects, natural resources, water conservation
Social Values	Cooperation, social responsibility, inclusivity	Ozone layer, water cycle, food chain, food web
National & Cultural Values	Indian Knowledge Systems, local knowledge	Medicinal plants, water purification methods, making traditional pots from clay, soil

• Pedagogical Approaches for Value Inculcation:

The Draft Science Curriculum 2025 strongly emphasizes experiential, inquiry-based, and activity-oriented pedagogical approaches to promote value education. Learning strategies such as hands-on experiments, project-based learning, field visits, group discussions, and community-linked activities provide students with meaningful learning experiences. Through active participation and real-life problem solving, learners develop values like cooperation, responsibility, honesty, environmental awareness, ethical reasoning, and scientific temper. These learner-centered approaches move beyond rote learning and enable students to internalize values naturally while constructing scientific knowledge, thereby supporting the holistic and value-based educational vision of NEP 2020.

Pedagogy and Associated Values:

Pedagogical Strategy	Values Inculcated	Few Examples from draft of Science Curriculum 2025
Experiments & Practical Work	Honesty, discipline, accuracy	Magnetism, methods of separation, acid, base, indicators, metal, non-metal reactions
Group Projects	Cooperation, respect, leadership	Structure of atom, thermometer
Environmental Activities	Responsibility, sustainability	Heat, force, pressure, air pressure
Discussion on Science & Society	Ethical reasoning, empathy	Physical and chemical change

Findings:

1. The draft science curriculum 2025 explicitly supports value education in alignment with NEP 2020.
2. Multiple values—intellectual, moral, social, environmental, and national—are embedded across grades (3rd to 10th).

3. Experiential and inquiry-based pedagogy serves as a major tool for value inculcation.
4. Science education is positioned as a means for holistic development rather than content transmission alone.

Conclusion:

The present study clearly establishes that the draft curriculum and syllabus of science for school education in Maharashtra are well aligned with the vision and spirit of the National Education Policy (NEP) 2020 with respect to the integration of value education. The curriculum goes beyond the traditional content-oriented approach and consciously embeds a wide spectrum of values such as scientific temper, curiosity, critical and logical thinking, environmental awareness, ethical responsibility, social sensitivity, and respect for Indian Knowledge Systems. These values are reflected through clearly stated objectives, thoughtfully selected content, experiential and inquiry-based pedagogical strategies, and competency-oriented assessment practices. Science learning, therefore, emerges as a holistic process that connects knowledge with real-life applications, societal concerns, and moral reasoning. The inclusion of themes related to sustainability, biodiversity, public health, safety, and national scientific heritage further strengthens the role of science education in developing responsible and informed citizens. However, the effective realization of these value-based curricular intentions largely depends on the preparedness of teachers to interpret and implement the curriculum meaningfully. Adequate teaching-learning resources, supportive school environments, and continuous professional development programs are essential to translate curriculum goals into classroom practices. With systematic teacher training and institutional support, the science curriculum in Maharashtra has the potential to significantly contribute to the holistic, ethical, and value-oriented development of learners as envisaged in NEP 2020.

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