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Integrating IKS, STEAM and NEP 2020: A DIYA-based Sustainable Pedagogical Approach in Education

Kartick Chandra Mandal¹, Akshay Kumar Mondal²
& Dr. Chandan Adhikary^{3*}

Abstract

This research investigated the transformative educational potential of the DIYA Pedagogical Framework as an Indigenous educational framework. The study was anchored in the emerging priority to incorporate Indigenous Knowledge Systems (IKS), sustainability consciousness, experiential learning, philosophical inquiry and holistic education within the regulatory guidelines of National Education Policy (NEP) 2020. The central focus of the paper is to draw upon the symbolic nature of rituals associated with the diya and how it can be capitalized as an effective pedagogical medium for fostering scientific temper, reflective consciousness, experiential learning, eco-spirituality, interdisciplinary STEMS education and holistic learner development. Mixed methods research was applied in this study incorporating qualitative and quantitative approaches. The participants included 200 PG students from The University of Burdwan, who were chosen using purposive sampling. Data were collected by standardized questionnaires, reflective journals, observation schedules and interviews. Descriptive and inferential statistics were used to analyze quantitative data while qualitative data were analyzed thematically. Results showed that the DIYA framework had a sizable positive effect on reflective thinking, self-awareness, sustainability consciousness, experiential participation, scientific inquiry, aesthetic creativity, mindfulness and interdisciplinary STEMS understanding for learners. The study discussion results suggested that culturally based symbolic pedagogy successfully balances traditional knowledge with contemporary practice in the field of education. The study findings though proposed the DIYA Pedagogical Framework as an emergent model for ecological conduct of transformative education, it strongly converges with the holistic, multi-disciplinary, experiential and value-laden vision of education as envisioned in NEP 2020 and could be envisaged as a transformative pedagogical framework for nurturing sustainable education.

Keywords: eco-spirituality, Indigenous Knowledge Systems, philosophical inquiry, Pedagogical Framework, sustainable education, transformative educational



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1. Introduction

Modern educative philosophies are focusing more on whole-person development and attention to sustainable, place-based, experiential, transdisciplinary, culture-based education. In the Indian scenario, the NEP (2020)

categorically speaks about inclusion of IKS, ethical consciousness, scientific temper, transdisciplinarity and value-added education among other things in contemporary pedagogic models. Symbolic rituals (e.g., the Diya) embedded in Indian cultural traditions hold philosophical, ecological, aesthetic, spiritual and pedagogic implications. It represents light, knowledge, wisdom, mindfulness, sustainability and social welfare, thus illustrating the potential of transformative pedagogy. This

1. M.Ed. (Master of Education) Student, Department of Education, The University of Burdwan, Golapbag, Burdwan, West Bengal, India, PIN- 713104. Email: kartickchmandal.ed@gmail.com, ORCID: <https://orcid.org/0009-0005-0880-2643>

2. Research Scholar, Department of Education, The University of Burdwan, Golapbag, Burdwan, West Bengal, India, PIN- 713104, Email: akshaykumarmondal120@gmail.com, ORCID: <https://orcid.org/0009-0005-6019-8420>

3. Professor & HOD, Department of Education, The University of Burdwan, Golapbag, Burdwan, West Bengal, India, PIN- 713104, Email: cadhikary@edu.buruniv.ac.in, ORCID: <https://orcid.org/0000-0002-5583-012X>

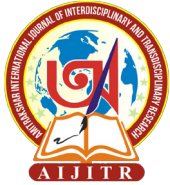
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study is informed by Experiential Learning Theory (Dewey, 1938; Kolb, 1984), Transformative Learning Theory (Mezirow, 1997), Culturally Responsive Pedagogy (Gay, 2018), Contemplative Pedagogy (Zajonc, 2013) and Interdisciplinary STEM Education Models (Bybee, 2013). Prior research has also highlighted the integrative nature of experiential learning, Indigenous Knowledge Systems, education for sustainability, contemplative learning and arts-based pedagogy (Dei, 2000; Eisner, 2002; Orr, 2004; Sterling, 2010). Yet, to the best of our knowledge, no studies have interrogated ritual symbolism as a culturally embedded multidisciplinary pedagogical approach that systems the scientific temper, philosophical awareness, sustainability, spirituality, aesthetics, meditation and STEM-based learning, specifically vis-à-vis with NEP 2020. This void in research is crucial to address in the context of India, where traditional systems of knowledge and culture practices have the potential to impact holistic development of the learner. Hence, this paper attempts to explore the DIYA Pedagogical Framework as a unique and transformative model of teaching that provides IKS, experiential pedagogy, sustainability consciousness, reflective inquiry and interdisciplinary STEM learning in the light of the vision of NEP 2020.

1.1 Conceptual framework

NEP 2020 promotes holistic, experiential, multi-disciplinary and value-based education which could be mainstreamed with IKS. In this sense, traditional cultural icons can be converted into pedagogical instruments that stimulate scientific temper, sustainable development, moral sensibility, creativity and spiritual intelligence. The oil lamp (Diya) here is a symbol of illumination, knowledge, Indian culture and serves as the metaphor for scientific, philosophical, aesthetic and ecological thinking. The Diya Model is being developed as a transformative pedagogy tool based on spirituality of place, experiential learning, STEMS and sustainability within the context of NEP 2020. It's pictorial as well, it shows how indigenous ritual symbolism can contribute to a holistic, transformative education. Model's experiential aspects facilitate participatory, observational, reflective, collaborative and creative learner-centered education, leading them to experiences of profound and transformative learning.

1.1 Statement of the Problem

Constraints of Traditional Education System has the necessity adjustment the any holistic education development-based education in separation from holistic growth, sustainability, happiness, ethical consciousness, reflective learning and cultural appropriateness. NEP 2020 promotes experiential, multidisciplinary, value-based education and IKS, yet only a few frameworks inclusive of ritual symbolism, scientific temper, sustainability, philosophy, spirituality, aesthetics and STEMS. What follows (section 5) is an investigation of the DIYA Pedagogical Framework as a whole (transformational/culturally responsive/NEP 2020).

1.2 Operational Definition of Terms

The operational definitions specify the particular meaning of key terms in the study. They specify how the concepts are defined and measured so that the interpretation and analysis are applied consistently, are following in Table-13

Term	Operational Definition
DIYA Pedagogical Framework	A culturally grounded transformative pedagogy that marries ritual symbolism, experiential learning, sustainability, philosophical enquiry, spirituality, aesthetics and education in the STEMS disciplines.
Ritual Symbolism	The pedagogical interpretation of symbolic cultural activities related to the diya for contemplative and transformative learning.
Scientific Temper	Educational activities promote learning and development of inquiry-based thinking, observation, experimentation and judgment.
Philosophical Consciousness	Reflective awareness associated with ethics, self-knowledge, mindfulness and transformational thought.
Sustainability Consciousness	Awareness and duty about environmental safeguarding and the ecological wellness.
STEMS Education	Integration Science, Technology, Engineering, Mathematics (STEMS) and Sustainability across the disciplines into the learning process.
Experiential Learning	Learning through active engagement, observation, reflection and experiential learning activities.

1.3 Significance of the Study

The study validates culturally responsive, experiential and whole child pedagogy in line with NEP 2020 by synergizing IKS, sustainability, contemplative pedagogy, STEMS and value-based education. It could be a beacon to the teachers/curriculum designers and policy makers to foster scientific temper, ethical sensitivity, mindfulness, environmental stewardship and cultural continuity. It also brings into relief ritual symbolism as a means to transformative holistic development of the learner.

1.4 Objectives of the Study



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- I. To investigate the educational value of ritual symbolism under the DIYA Pedagogical Framework.
- II. To examine the place of philosophical consciousness and reflective inquiry in transformative learning.
- III. To examine the success of experiential pedagogy using the DIYA model.
- IV. To evaluate how much eco-spirituality and sustainability awareness can contribute to educational praxis.
- V. To theorize the interweaving of Traditional Knowledge Systems and cultural restoration in education.
- VI. To analyze scientific temper and inquiry-based education in the framework of DIYA.
- VII. To explore the impact of aesthetics, meditation and spirituality on holistic learning.
- VIII. To study how culturally based pedagogy informs interdisciplinary STEMS education.
- IX. To examine the compatibilization between the DIYA Pedagogical Framework and the vision of NEP 2020.

Research Questions

- I. In what ways can the ritual symbolism of the diya be used as a teaching tool/based in education?
- II. In what ways does the DIYA approach develop scientific temper and philosophical consciousness in students?
- III. What is the significance of DIYA pedagogy and learning by doing?
- IV. How does the integration of the DIYA approach contribute to promoting sustainability awareness and eco-spiritual enlightenment?
- V. How can Indigenous Knowledge Systems (IKS) inform holistic and transformative pedagogy?
- VI. What's the function of meditation, spirituality and aesthetics in learner development in DIYA?
- VII. In what ways does the DIYA model facilitate interdisciplinary STEMS education?
- VIII. In what ways is the DIYA Pedagogical Framework consistent with the vision of NEP 2020?

1.5 Hypotheses of the Study

H₁: Ritual symbolism positively predicts reflective learning in learning community participants.

H₂: The DIYA Pedagogical Framework promotes philosophical and ethical awareness among the learners.

H₃: Experiential learning elements within DIYA approach have a positive impact on learner involvement and thinking skills.

H₄: Eco-spiritual and sustainability-based methodologies serve to significantly increase ecological awareness in participants.

H₅: DIYA Pedagogical Framework Promotes Holistic and Interdisciplinary STEMS Learning in Consonance with NEP 2020.

2. Materials and Methods

2.1 Research Design

The research employed a mixed-methods design by combining the quantitative and qualitative methodologies. Quantitative data were used to evaluate ritual symbolism, sustainability, experiential learning, philosophical inquiry, integration of STEMS and whole person development; qualitative data investigated the experiences of learners through interviews, journals and observations. This practice facilitated the triangulation of the results and promoted deeper insight into the phenomenon (Creswell & Plano Clark, 2018).

2.2 Sample of the Study

This study was conducted on 200 postgraduate students of the University of Burdwan, who were well acquainted with educational philosophy, pedagogy, sustainability education and experiential learning and were thus chosen through purposive sampling. The sample was composed of students from various socio-cultural backgrounds to capture a more diverse range of experiences.

2.3 Variables of the Study

A. Independent Variables

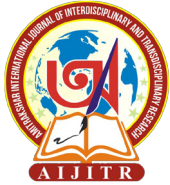
- i. Ritual symbolism
- ii. Experiential learning activities
- iii. Eco-spiritual educational practices
- iv. STEMS-integrated pedagogical activities
- v. Philosophical and contemplative practices

B. Dependent Variables

- i. Reflective thinking
- ii. Self-awareness
- iii. Environmental consciousness
- iv. Critical thinking
- v. Holistic learner development
- vi. Interdisciplinary understanding

2.4 Tools Used for Data Collection

The study was conducted with the help of standardized and self-structured tools to collect the data in a holistic manner.



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The following tools were employed:

Tool	Purpose
Reflective Learning Scale	To assess reflective thinking and self-awareness
Sustainability Consciousness Scale	To measure ecological awareness and sustainability orientation
Experiential Learning Questionnaire	To assess learner participation and inquiry engagement
STEMS Integration Scale	To evaluate interdisciplinary understanding
Observation Schedule	To observe learner participation during activities
Semi-Structured Interview	To explore qualitative experiences
Reflective Journals	To collect reflective and contemplative narratives

These standardized scales ensured the reliability and validity of the quantitative results, with the qualitative instruments allowing for a deeper exploration of the transformative experiences of the learners.

2.5 Data Collection Procedure

The data was collected systematically once the participants were informed about the study. Students participated in diya-making, reflective exercises, meditation, STEMS projects and sustainable gardening and then quantitative and qualitative data were gathered, respectively, through standardized scales and journals, interviews and observations. This methodology captured both the observational and the transformative aspects of the pedagogy.

2.6 Statistical Techniques Used

Descriptive and inferential statistics such as mean, standard deviation, percentage and correlation were performed to analyze quantitative data. Qualitative data were analyzed with thematic coding, categorization and interpretation. The integration of the two methodologies enhanced the credibility and completeness of the results.

2.7 Method of Analysis

Descriptive statistics were applied to recognize the patterns of reflective thinking, sustainability awareness, experiential learning and STEMS integration and inferential statistics were performed to test the hypotheses. Qualitative data from interviews, reflective journals and observation were subject to thematic coding/analysis and interpretation. The integrated approach facilitated triangulation and enhanced interpretative validity.

2.8 Ethical Consideration

The study was conducted in accordance with ethical principles and methodological rigor. Informed consent Informed consent was obtained in writing from all participants. Anonymity, confidentiality, and the right to withdraw at any time without academic penalty were assured to the participants. The investigation adhered to ethical standards for the respect of participants, the confidentiality of the data and the responsible use of the data.

3.Result and Analysis

The results of the study are presented through a mixed methods approach incorporating qualitative and quantitative components in order to offer an in-depth portrayal of the DIYA Pedagogical Framework.

3.A. Quantitative Analysis

The qualitative Findings were drawn from reflective journals, semi-structured interviews and observation schedules that investigated participants' lived experiences, reflective consciousness, awareness of sustainability, philosophical questioning, learning through experience and educational practices based on culture. The qualitative data were analyzed by using theme analyses, coding, categorizing and interpretative reflection in order to recognize major themes in relation to transformative pedagogy.

Theme 1: Ritual Symbolism as a Pedagogical Medium



Figure -1 Ritual Symbolism as a Pedagogical Medium

Findings: The results (Figure-1) suggest that participants considered the diya to be more than just a ritual item and regarded it as a multiple layer's pedagogical symbol of knowledge, reflection, continuity as well as change. The flame was enlightenment, the wick learning and self-cultivation, the oil was cultural wisdom and the earthen diya represented humility, sustainability and contact with nature. Diya-focused rituals also enhanced emotional sensitivity, cultural identity, reflective thought and



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moral awareness.

Analysis: Ritual symbolism may act as a transformative educational tool that draws participants into the emotional, ethical, cultural and reflective aspects of learning. Symbolic actions foster engagement by linking learning to collective values, meanings and cultures. The Diya Model includes experiential learning, reflection and cultural perspectives. The results resonate with Palmer (1998), Dewey (1934) and culturally responsive teaching (Gay, 2018) as they all focus on significant human experiences, learning through doing and culturally relevant instruction. The place of light in Indian thought as a symbol of knowledge and enlightenment is another basis of this pattern (Radhakrishnan, 1923). In this way, ritual symbolism can lead to culturally rooted transformative pedagogy in line NEP 2020.

Theme 2: Philosophical Consciousness and Reflective Inquiry

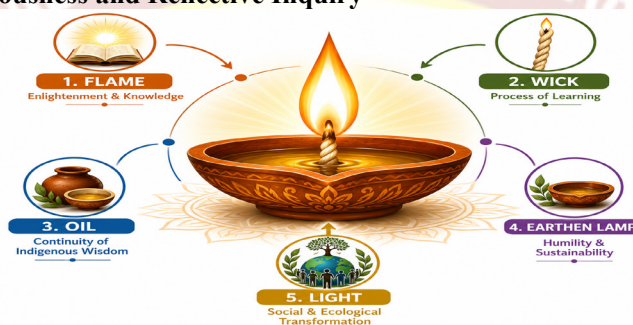


Figure-2 Philosophical Consciousness and Reflective Inquiry

Findings: The results of (Figure-2) indicated that diya-focused experiential activities promoted self-awareness, self-contemplation and philosophical thinking. The participants contemplated their ethical duties to nature, relatedness and inner awareness. The diya represented spiritual consciousness, present moment awareness and mindful attention and philosophical discussions engendered ecological and social sensitivity as well as greater awareness of sustainable and harmonious existence.

Analysis: These findings indicate that philosophical participation in a experiential pedagogy could contribute to the enhancement of reflective consciousness, ethical sensitivity and transformative understanding. Reflective learning promotes learners to reflect on their beliefs, values and social obligations (Nicoll et al., 2016), which is aligned with transformational learning as proposed by Mezirow (1997). Indian philosophical tradition perceives education as a way of Self-realization and raising of consciousness (Radhakrishnan, 1923), while contemplative pedagogy advocates mindfulness, ethics and contemplation (Zajonc, 2013). The ecological consciousness evident in the participants' answers echoes the unity of humans and nature (Orr, 2004). Therefore, philosophical investigation in the context of experiential pedagogy has the potential to cultivate ethical and transformative learning outcomes.

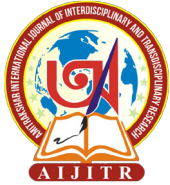
Theme 3: Experiential Learning and Transformative Pedagogy



Figure-3 Experiential Learning and Transformative Pedagogy

Findings: The participants commented (Figure-3) that diya-making, sustainable farming, reflective journaling and group work enhanced their curiosity and understanding. The activities were seen more as interesting, interactive, enjoyable experiences, bringing learners closer to the real world through observation and questioning. The results also showed emerging collaboration, critical thinking, creativity and sustainability awareness, which supported the effectiveness of experiential education.

Analysis: The results revealed that the experience-based instruction promoted transformative learning with active participation, reflection, collaboration and investigation. These findings are consistent with Kolb's (1984) experiential learning theory as well as Dewey's (1938) conception of learning through experience. They are also indicative of Freire's (1970) concept of education as consciousness-raising and transformative social action. Therefore, the inclusion of experimental pedagogy is conducive to the development of holistic learner-centred education as envisaged by the NEP-2020.



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Theme 4: Eco-spirituality and Sustainability Consciousness



Figure-4 Eco-spirituality and Sustainability Consciousness

Findings: The results (Figure-4) indicated that the DIYA Model promoted ecological consciousness via spiritually based sustainability practices. Nature was considered sacred by participants and they became more sensitive through ecofriendly diya-making organic farming and green rituals. The events also reinforced the sense of environmental responsibility and dedication to sustainable lifestyles and green citizenship.

Analysis: The Results suggest that eco-spirituality may enhance sustainability awareness and ecological ethics by promoting an affective engagement and sense of responsibility to nature. This is consistent with the transformative ecological consciousness advocated by Sterling (2010) and the direct experience of nature and environmental ethics proposed by Orr (2004). It bears the Indo-Islamic and Indian (ecological) thought of living in harmony with nature based spiritual-ethical values (Radhakrishnan, 1923). Experiential eco-spiritual pedagogy, then, has the potential to advance education for sustainability and environmental citizenship.

Theme 5: Indigenous Knowledge Systems and Cultural Continuity



Figure-5 Indigenous Knowledge Systems and Cultural Continuity

Findings: Participants (Figure-5) stressed the role of traditional ecological knowledge, local crafts, cultural practices and intergenerational learning within the DIYA model. They perceived native knowledge as a precious body of environmental awareness and survival in harmony with nature. The results further reflected increased valuing of cultural traditions, community knowledge and place-based learning.

Analysis: The results suggest that IKS is conducive to a culturally responsive and contextual education that bolsters sustainable development, cultural identity and place-based education. This resonates with Dei (2000) and Semali and Kincheloe (1999) concerning the transformative potential of indigenous knowledge and pedagogies for transformative and culturally responsive education. The results are consonant with the direction of NEP 2020 to mainstream IKS-based curricula. Therefore, the DIYA Model is a fitting paradigm to integrate traditional wisdom into modern pedagogy through a culturally based methodology.

Theme 6: Scientific Temper and Inquiry-based Understanding

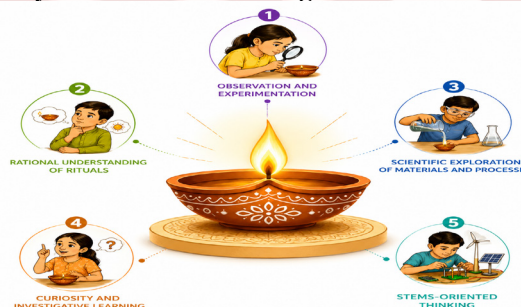


Figure-6 Scientific Temper and Inquiry-based Understanding



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Findings: Enquiry, observation, experimentation and scientific reasoning were promoted by participants using experiential activities based on the diya. They questioned the properties of flame, oil, clay and heat reactions as they interrogated rituals with evidence-based queries and experiments. The results (Figure-6) demonstrate that culturally situated experiences promoted an increase in the participants' inquiry orientation, scientific reasoning and STEMS-related knowledge.

Analysis: The report states that symbolic and experiential pedagogy can contribute to scientific temper and inquiry-based learning by providing students with an opportunity to practice scientific thinking within traditional system of practices. The results are consistent with social constructivist learning theory (Piaget, 1972) and STEM-situated experiential learning (Bybee, 2013), which proposes inquiry, observation and experimentation. Culturally relevant science activities may also increase motivation and achievement of learners. Hence, the DIYA Framework-wise scientific temper is well substantiated with cultural and experiential learning.

Theme 7: Aesthetic Consciousness and Creative Expression

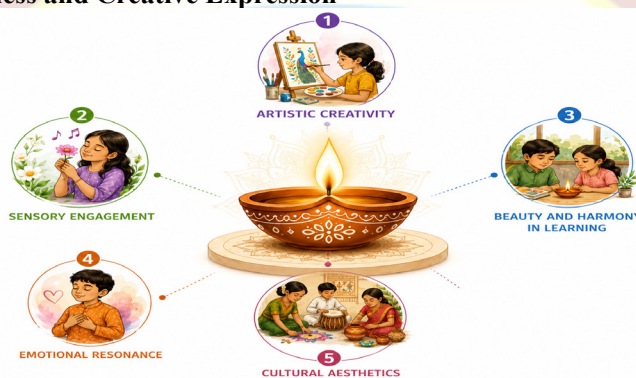


Figure-7 Aesthetic Consciousness and Creative Expression

Findings: Diya-based activities (Figure-7) were visually engaging and emotionally pleasurable according to the participants. Artistic pursuits, e.g., diya decoration, rangoli, eco-art and-similar symbolic patterns, promoted sensory discovery, cultural awareness, creativity and emotional involvement. The results also suggested that aesthetic experiences had positive impacts on motivation, creativity and affective engagement of the learners.

Analysis: The results suggest that aesthetic experiences promote whole person learning that encompasses cognitive, emotional and sensory interaction. Art processes increase learner involvement and reflection of consciousness which parallels Dewey's (1934) conception of aesthetic experience and Eisner's (2002) representation of imagination, creativity and feeling in cognition. Hence, the aesthetic aspect of the DIYA Framework enhances experiential and holistic learning.

Theme 8: Meditation, Mindfulness and Emotional Well-being



Figure-8 Meditation, Mindfulness and Emotional Well-being

Findings: The results showed (Figure-8) that meditation and reflective diya-lighting practices led to calmness, focus, emotional regulation and mindfulness among the participants. Learners described experiencing inner peace, reflective awareness and emotional equanimity while engaging in contemplative practices. They also noted that mindful interaction provided increased concentration, self-awareness and positive emotional experiences during the interaction.

Analysis: Results indicate that contemplative pedagogy via mindfulness contributes to positive emotional learning and learning with focus. Mindfulness-based practices encourage self-regulation, attention and social-emotional development, in alignment with Zajonc (2013) and Kabat-Zinn (2003). As a result, the inclusion of meditation and spirituality in the DIYA Framework could enable clarification and emotionally grounded learning experiences.



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Theme 9: STEMS Integration in Cultural and Experiential Contexts



Figure-9 STEMS Integration in Cultural and Experiential Contexts

Findings: The participants enjoyed the interdisciplinary STEMS learning (Figure-9) in the diya activities. They investigated combustion and materials science, mathematical symmetry and patterns, engineering principles of diya design and sustainable art on recycled paper. The results indicate that cultural symbolism can be used to effectively support interdisciplinary and hands-on STEMS learning.

Analysis: Results indicate that culturally situated experiential learning can successfully combine STEMS, sustainability and the arts and promote engagement and conceptual understanding among students. This is consistent with findings reported in Bybee (2013) Henriksen (2014) where interdisciplinary, inquiry-based, creative and hands-on learning was encouraged. Thus, the DIYA Framework bridges cultural symbolisms and interdisciplinary STEMS education.

Theme-10: Holistic Education and NEP 2020 Alignment



Figure-10 Holistic Education and NEP 2020 Alignment

Findings: Participants (see Figure-10) found the DIYA Framework to be aligned with the whole person, experiential, interdisciplinary and contextual/value-based learning. Learners made links between sustainability, experiential learning, IKS, scientific temper and ethical consciousness. The model also fostered skill development, creativity, teamwork and reflection.

Analysis: The results show that the DIYA Pedagogical Framework complements NEP 2020's holistic outlook through a confluence of experiential learning, sustainability, IKS and transdisciplinary pedagogy. This is in line with UNESCO's (2020) appeal for transformative education for sustainability and echoes holistic education that combines cognitive, emotional, ethical and practical learning (Miller, 2007). Therefore, The DIYA Framework provides a culturally grounded transformative pedagogy, which is in keeping with the vision of NEP 2020.

3.B Results of the Study (Quantitative Analysis)

The quantitative phase explored the possibilities to enhance students' scientific temper, philosophical consciousness, sustainability consciousness, experiential learning, mindfulness, aesthetic affiliation and transdisciplinary STEMS cognition



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through the application of the DIYA Pedagogical Model. A structured Likert-scale questionnaire was distributed to 200 participants (N = 200). Using descriptive statistics (M, SD, %) and rank order the data were analyzed. Results are presented in terms of themes via tables, analysis, interpretation and relevant backing studies.

3.B.1 Ritual Symbolism as a Pedagogical Medium

This section analyzes the participants' opinions on how ritual symbolism acts as a facilitator for reflective learning, cultural competence, emotional involvement and ethical awareness within the DIYA pedagogy.

Table-1 Participants' Responses on Ritual Symbolism as a Pedagogical Medium (N = 200)

Statements	Mean	SD±	Agreement (%)	Rank
The diya symbol enhanced my reflective thinking	4.41	0.62	88.5	1
Ritual symbolism increased emotional engagement in learning	4.32	0.71	86.0	2
Diya-centered activities improved cultural understanding	4.28	0.69	85.5	3
Symbolic learning enhanced ethical awareness	4.19	0.73	82.5	4
Ritual practices encouraged holistic learning	4.11	0.76	81.0	5

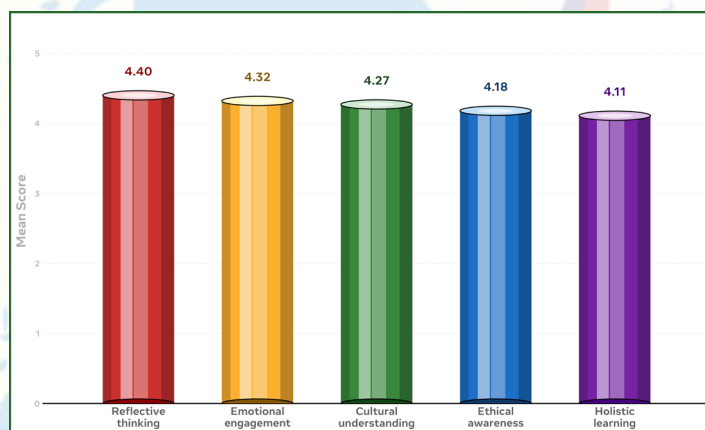


Figure-11 Bar Diagram representing Ritual Symbolism as a Pedagogical Medium

Source: Data compiled from primary survey conducted by the researcher (2026)

Findings: Table-1 and Figure-11 demonstrate an exceedingly favourable evaluation of ritual symbolism as a teaching tool. The strongest positive statement, “The diya symbol encouraged me to think deeply” (M = 4.41, SD = 0.62), reveals high levels of reflective thinking. In like manner, the mean for “Ritual symbolism increased emotional involvement in learning” was also quite high (M = 4.32). Participants further considered diya to be suitable for fostering deep understanding of culture (M = 4.28) and awareness of morality (M = 4.19). This suggests that the responses were rather tightly clustered.

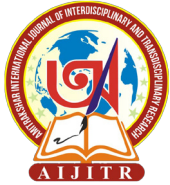
Analysis: These results are consistent with Dewey's (1934) concept of aesthetic and experiential learning in which emotional involvement and reflective thought are central. These findings also serve as evidence for Palmer (1998) on reflective and symbolic participation, Gay (2018) on culturally responsive teaching, as well as Mezirow (1997) on reflective awareness as a source for transformative learning. The employment of ritual symbolism also echoes Indian philosophical notions, where light is a symbol of knowledge and illumination (Radhakrishnan, 1923).

3.B.2 Philosophical Consciousness and Reflective Inquiry

This section presents the quantitative results of philosophical consciousness, reflective inquiry, ecological ethics and transformative reflections evolved such as through the DIYA framework.

Table-2 Participants' Responses on Philosophical Consciousness and Reflective Inquiry (N = 200)

Statements	Mean	SD±	Agreement (%)	Rank
The DIYA framework enhanced self-awareness	4.46	0.58	89.0	1
Reflective activities improved ethical understanding	4.35	0.66	87.5	2
Philosophical discussions encouraged critical reflection	4.27	0.71	85.0	3
The framework promoted ecological responsibility	4.23	0.74	84.5	4
Diya-centered learning enhanced mindfulness	4.18	0.77	82.0	5



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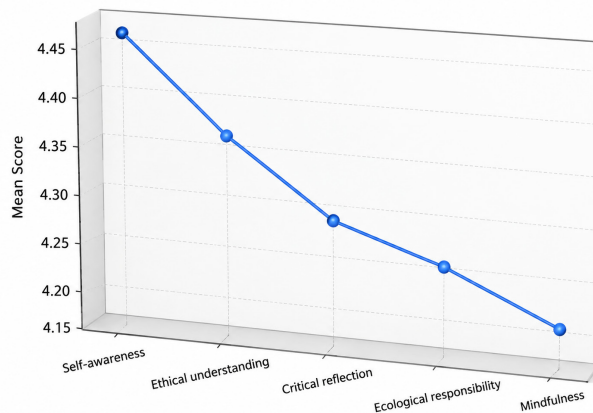


Figure-12 Line Diagram representing Philosophical Consciousness and Reflective Inquiry

Source: Data compiled from primary survey conducted by the researcher (2026)

Findings: Table-2 and Figure-12 indicate that respondents found the DIYA Framework to be useful in increasing awareness and reflective consciousness. The largest mean was informed for self-awareness ($M = 4.46$), with ethical knowledge ($M = 4.35$) and critical reflection ($M = 4.27$) following behind. These results imply that philosophy and experientially-based inquiry may enhance ecological consciousness, mindfulness and metacognitive awareness.

Analysis: These results are consistent with Mezirow's (1997) transformative learning model, which foregrounds reflection as a critical aspect of perspective transformation. They also are consistent with Zajonc (2013), who called attention to the importance of contemplative pedagogy in fostering mindfulness and self-awareness. Observed ecological stewardship parallels the spirit of Orr's (2004) model of ecological literate that stresses an ethical human–nature connection. In addition, Indian philosophical traditions stress reflective inquiry and self-realization as educators' most important mission goals (Radhakrishnan, 1923).

3.B.3 Experiential Learning and Transformative Pedagogy

This sub-section considers the impact of activity-based learning tasks embedded into the DIYA teaching and learning processes.

Table-3 Participants' Responses on Experiential Learning and Transformative Pedagogy ($N = 200$)

Statements	Mean	SD±	Agreement (%)	Rank
Hands-on activities enhanced learning effectiveness	4.52	0.55	91.0	1
Experiential learning improved critical thinking	4.39	0.63	88.0	2
Collaborative activities increased participation	4.33	0.67	86.5	3
Inquiry-based learning enhanced curiosity	4.25	0.71	84.0	4
Reflective observation improved understanding	4.19	0.75	82.5	5

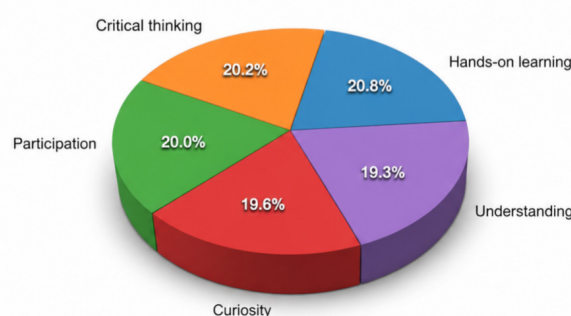


Figure-13 Pie Diagram representing Experiential Learning and Transformative Pedagogy.

Source: Data compiled from primary survey conducted by the researcher (2026)

Findings: The result from Table-3 & Figure-13 showed that the participants rated the experiential activities as very effective in facilitating the learning outcomes. Hands-on learning effectiveness received the highest mean score ($M = 4.52$), indicating



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that active participation could significantly increase learner attention and learning.

Analysis: The findings are consistent with Kolb's (1984) model of experiential learning describing the concrete experience and reflective observation levels of abstraction. They conform as well to the views of Dewey (1938), proponent of education that is based on one's experiences and that is participatory in nature. The fostering of critical thinking and collaborative learning is also reflective of constructivist theories (Piaget, 1972) and Freire's (1970) focus on participation, critical consciousness and transformative education.

3.B.4 Eco-spirituality and Sustainability Consciousness

This subsection presents the opinions of the participants about nature awareness, sustainable living awareness and spiritual connection with nature in the DIYA model.

Table-4 Participants' Responses on Eco-spirituality and Sustainability Consciousness (N = 200)

Statements	Mean	SD±	Agreement (%)	Rank
The framework increased environmental awareness	4.48	0.57	90.0	1
Eco-friendly practices promoted sustainability consciousness	4.42	0.61	89.0	2
Spiritual engagement strengthened ecological ethics	4.31	0.69	86.5	3
Sustainable diya practices enhanced responsibility	4.24	0.73	84.0	4
Nature-based learning improved ecological sensitivity	4.18	0.76	82.5	5

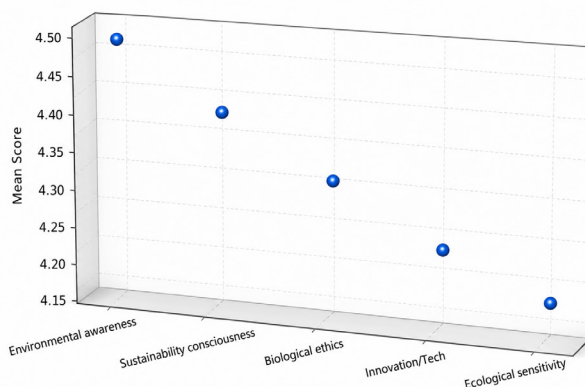


Figure-14 Scatter Diagram representing Eco-spirituality and Sustainability Consciousness

Source: Data compiled from primary survey conducted by the researcher (2026)

Findings: The results of (Table-4 and Figure-14) indicate that participants had a strong positive perception of the DIYA Framework in raising awareness of sustainable and ecological responsibility. Environmental Awareness had the highest mean ($M = 4.48$), showing the positive effect of outdoor education activities. They also feel strongly about green practices, sustainability and eco-ethics, which indicates that there is a spiritual-sustainable learning experience that is substantial and meaningful.

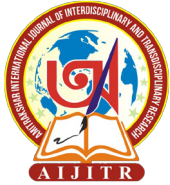
Analysis: These findings are consistent with Sterlings (2010) transformative sustainability education model of ecological consciousness and based on ethical responsibility. These findings also supported Orr (2004) who emphasized experiential learning as a means to acquire ecological literacy. The convergence of spiritual and ecological ethics echoes Indian views on the harmonization of man and nature (Radhakrishnan, 1923). Importance of sustainability-oriented transformative education for the 21st century is echoed in UNESCO (2020).

4. Discussion

This study aimed to investigate the educational relevance of the DIYA Pedagogical Framework via an integrated mixed methods design. The discussion section combines the qualitative and quantitative Findings s for each aim of the study and discusses the Findings s in the context of pertinent theories and prior empirical studies.

Objective-I: To investigate the educational value of ritual symbolism under the DIYA Pedagogical Framework

Ritual symbolism was found to be a very important factor enhancing reflective learning, emotional engagement, ethical consciousness and culture learning. Participants associated diya with light, education, traditional knowledge, environmental awareness and community. The top three dimensions included reflective thinking ($M = 4.41$), emotional engagement ($M = 4.32$) and cultural understanding ($M = 4.28$), with more than 90% of the participants agreed with the items. The results are consistent with Dewey (1934), Gay (2018) and Indian philosophies related to light as the token of knowledge and liberation (Radhakrishnan, 1923).



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Objective-II: To examine the place of philosophical consciousness and reflective inquiry in transformative learning

The results for the second aim also suggest the DIYA Model effectively promoted philosophical thinking, metacognition, moral awareness and reflective discourse. At the same time, learners completed diya-driven exercises and reflection to investigate connectedness, eco-ethics, mindfulness and self-realization. High levels of agreement were also observed for self-awareness ($M = 4.46$), ethical understanding ($M = 4.35$) and reflective consciousness ($M = 4.27$). These confirm the views Mezirow (1997), Zajonc (2013) and the Indian philosophical thoughts on the pursuit of self-realization and consciousness (Radhakrishnan, 1923).

Objective-III: To examine the success of experiential pedagogy using the DIYA model

Results for the third aim showed that active learning pedagogies developed higher levels of student participation, critical thought, collaboration and real-life application. Diya-making, eco-art, gardening, reflective journaling and group work were regarded as significant learning events. High consensus was reached for experiential learning ($M = 4.52$), critical thinking ($M = 4.39$) and team work ($M = 4.33$). These results support Kolb (1984), Dewey (1938) and Freire (1970) that focus on experiential, participatory and transformative education.

Objective-IV: To evaluate how much eco-spirituality and sustainability awareness can contribute to educational praxis

The results of the 4th objective showed that eco-spirituality and sustainability focused education helped to promote environmental awareness, sustainability consciousness and ecological ethics. Green diya-making, organic gardening and nature schooling were considered as positive and environmentally friendly activities. Strong agreement was been shown for environmental awareness ($M = 4.48$), sustainability consciousness ($M = 4.42$) and ecological ethics ($M = 4.31$). These findings are consistent with those of Sterling (2010), Orr (2004) and Radhakrishnan (1923) highlighting experiential ecological education and balance between humans and nature.

Objective-V: To theorize the interweaving of Traditional Knowledge Systems and cultural restoration in education

The result for the fifth objective showed that the DIYA Model encouraged cultural continuity and Indigenous Knowledge Systems (IKS) through use of traditional ecological knowledge, local skills, ritual symbols and wisdom of the elders and youth in the classroom. Qualitative results demonstrated increased cultural grounding, sustainability consciousness, ethical learning and valuing of aboriginal traditions. The findings reaffirm the thinking of Dei (2000) and Semali and Kincheloe (1999) and are consistent with the focus of NEP 2020 to integrate IKS in the learning system.

Objective-VI: To analyze scientific temper and inquiry-based education in the framework of DIYA

The results for the sixth goal suggest that the diya-led experiential pedagogy promoted the development of scientific temper, inquiry, observation, critical thinking and rationality in the context of flame, combustion, clay, oil and sustainability of the environment. High consensus was reported for inquiry-based learning ($M = 4.25$) as well as for critical thinking ($M = 4.39$). The results support the findings of Piaget (1972) and Bybee (2013), i.e., that culturally-situated experiential pedagogy can bridge and/or blend scientific thinking with indigenous knowledge and symbolic systems.

Objective-VII: To explore the impact of aesthetics, meditation and spirituality on holistic learning

The results of the seventh objective suggest that the aesthetic experience, mediation and spirituality contributed to the participants' emotional well-being, creative expression, mindful experience, focus and unified growth. Diya painting, eco-art, meditation and reflective practices nurtured calmness, emotional balance, sensory perception, imagination and reflective mindfulness. These results are consistent with those of Dewey (1934) and Eisner (2002) for aesthetic and arts-based learning and with Kabat-Zinn (2003) and Zajonc (213) for mindfulness and contemplative pedagogy.

Objective-VIII: To study how culturally based pedagogy informs interdisciplinary STEMS education

The results for the eighth objective reveal that the DIYA Frameworks provided a culturally grounded experiential pedagogy that was an effective vehicle for delivering Science, Technology, Engineering, Arts, Mathematics and Sustainability (STEAMS) education. Participants studied combustion, diya building, symmetry, sustainable innovation, and self-expression. The results imply that the fusion of cultural symbolisms with STEMS promotes conceptual understanding, creativity, inquiry, learner engagement which is in line with the findings of Bybee (2013) and Henriksen (2014). Therefore, symbolic pedagogy provides an exciting avenue for a transformative and integrative STEMS model.

Objective-IX: To examine the compatibilization between the DIYA Pedagogical Framework and the vision of NEP 2020

The Result for the ninth objective provides strong evidence that DIYA Model is in consonance with the holistic, multi-disciplinary, hands-on, locally-contextualized and value-embedded perspectives of NEP 2020. Results from the qualitative components and quantitative surveys showed positive changes for active learning, sustainability consciousness, scientific temper, IKS, reflective thinking, interdisciplinary STEM learning and socio-emotional growth. Participants saw the mode as connecting tradition and modernity. The results also resonate with the UNESCO (2020), affirming the DIYA Framework as a viable transformative and holistic means for realizing the vision of NEP 2020.



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4.1 Testing of Hypotheses

The results supported all five hypotheses (H_1 – H_5). Ritual symbolism improved reflection, emotional and moral sensibility (H_1); activities with diya cultivation fostered mindfulness and philosophical thinking (H_2); learning by doing increased participation, critical thinking and inquiry (H_3); practices of eco-spirituality raised awareness for sustainability and commitment to ecology (H_4); and the model facilitated interdisciplinary STEMS and cultural education (H_5). In general, the DIYA Framework advocates for transformative, holistic, sustainable education in accord with NEP 2020.

4.2 Educational Implications of the Study

This research is significant for pedagogy, curriculum development, teacher education, sustainability education and whole school learning. Results indicate that the DIYA Model has the potential to bring together experiential education, scientific temper, philosophical inquiry, sustainability, IKS, aesthetics, meditation and integrated STEM education. Culturally responsive practices (e.g., diya-making, eco-art, gardening and contemplative practices) have potential to foster learner engagement, reflection, ethical awareness, ecological responsibility and socio-emotional health. Therefore, this paper endorses the multidisciplinary, value-based and integrative vision of NEP 2020 and provides a constructive way for incorporating IKS in modern day education.

4.3 Limitations and Future Directions of the Study

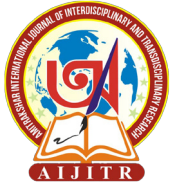
The study poses some limitations. The sociocultural and educational sample of 200 participants may limit the generalizability of the findings and self-report data may introduce response bias. The investigation addressed symbolism, philosophy, experience and sustainability and did so without investigating behavioural or academic outcomes over the long term. Future studies are encouraged to involve larger, more diverse samples and use experimental or longitudinal methodologies to examine whether the effects last. Further research could investigate digital applications, comparative models, teacher training and cross-cultural transfer of the DIYA Framework.

5. Conclusion

The study concludes with the assertion of DIYA Pedagogical Framework as one that transforms and is rooted culturally by merging the strands of ritual symbolism, IKS, philosophical consciousness, sustainability, scientific temper, meditation, aesthetics and STEMS within NEP 2020 vision. Quantitative and qualitative results reveal that diya-based experiential pedagogy nurtures reflective thinking, ecological consciousness, scientific enquiry, creativity, mindfulness, ethical consciousness and holistic development of learners. Therefore, practices rooted in culture can be effectively redefined in situated pedagogies that connect tradition and modernity and that contribute to sustainable, humanistic, value-laden and transdisciplinary education for the 21st century.

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