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EFFECTIVENESS OF ALTERNATIVE ENVIRONMENTAL EDUCATION PROGRAM IN PROMOTING CONNECTEDNESS WITH NATURE AMONG SECONDARY SCHOOL STUDENTS OF GOA

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Abstract:

Environmental Education (EE) has traditionally been grounded in a cognitive–instrumental paradigm that prioritizes the transmission of ecological knowledge, scientific facts, and pro-environmental skills with the assumption that awareness will naturally translate into responsible environmental behaviour. However, mounting global ecological crises and the persistent gap between environmental knowledge and action have prompted a paradigm shift within EE scholarship toward the affective domain particularly the concept of Connectedness with Nature (CWN). CWN refers to the extent to which individuals emotionally, psychologically, and experientially perceive themselves as part of the natural world rather than separate from it,(Hungerford & Volk, 1990). Contemporary research increasingly demonstrates that values, emotions, identity, and lived experiences play a decisive role in shaping long-term environmental attitudes and behaviours, especially during adolescence, a critical developmental stage for identity formation. This shift challenges purely classroom-based, exam-oriented environmental instruction and calls for pedagogical approaches that cultivate empathy for nature, sensory engagement, place attachment, and ethical responsibility. Within this emerging paradigm, Alternative Environmental Education Programs (AEEP) have gained attention for their ability to move beyond formal curricula and foster deeper, relational connections between students and their ecological surroundings.

Keywords: Alternative Environmental Education Programs (AEEP), Connectedness with Nature (CWN).Bio cultural Indicator (BCI)

Introduction:

The goal of environmental education is to develop a world population that is aware of, and concerned about the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations, and commitment to work individually and collectively towards obtaining solutions for current problems and the prevention from forthcoming ones (UNESCO, 1976).

Goa presents a particularly critical and unique context for examining CWN among secondary school students due to its complex intersection of ecological richness, cultural diversity, and accelerating socio-environmental change. Despite its small geographical size, Goa is part of the Western Ghats biodiversity hotspot and hosts fragile coastal ecosystems, forests, rivers, wetlands, and agrarian landscapes that have historically shaped local livelihoods, belief systems, and cultural practices. However, rapid urbanization, mass tourism, mining activities, infrastructure expansion, and changing consumption patterns have exerted significant ecological pressures on these areas (Barrable, 2019; Bruni et al., 2017). These transformations are accompanied by bio cultural erosion, wherein traditional ecological knowledge, nature-based livelihoods, and culturally embedded relationships with land and sea are gradually being displaced by market-driven values and homogenized lifestyles. Linguistic shifts particularly the declining everyday use of Konkani and indigenous dialects further weaken the transmission of place-based ecological narratives, folk practices, and intergenerational knowledge that once anchored young people to their environment. For adolescents growing up in Goa today, nature is increasingly encountered as a recreational commodity or abstract textbook concept rather than as a lived, relational space, raising concerns about environmental alienation and diminished stewardship.

In this context, formal school-based environmental education in Goa, while aligned with national curricular mandates, often remains constrained by standardized syllabi, limited outdoor engagement, and an emphasis on assessment outcomes. Such approaches may succeed in imparting basic environmental concepts but fall short of nurturing emotional bonds, ethical concern, and a sense of belonging to local ecosystems. This gap is particularly consequential for secondary students, who are navigating social pressures, digital immersion, and academic competition, often at the cost of meaningful engagement with their immediate environment, (Rodrigues, 2019). The Goan context therefore offers a compelling case to explore pedagogical interventions that can counteract ecological disconnection by re-embedding young learners within their socio-ecological landscapes. Studying CWN here

allows for an examination of how global environmental challenges intersect with localized processes of cultural change, ecological degradation, and educational practice. Reconnect with nature'' has become the mantra for addressing humanity's severance from the natural world. This perceived separation is widely viewed as the primary driver behind the global environmental crisis. In identifying future challenges for conservation biology,Balmford and Cowling see a great need for interdisciplinary efforts to tackle perhaps the most pervasive underlying threat of all by reconnecting people and nature .Even if all the other building blocks of effective conservation are in place, we will not succeed unless the general public cares, and they are unlikely to care enough if they no longer experience nature directly. Connectedness with nature (CWN) is therefore defined as a stable state of consciousness comprising symbiotic cognitive, affective, and experiential traits that reflect, through consistent attitudes and behaviors, a sustained awareness of the interrelatedness between one's self and the rest of nature. CWN sits on a continuum comprising information about nature and experience in nature but is differentiated as a more holistic process for realizing transformative outcomes that serve oneself and their community. Various instruments are available to measure the CWN construct, although their cross-cultural transferability is unclear. Multiple benefits of CWN linked to physical and psychological well-being have been identified and CWN is distinct in that it supports happiness and more purposeful, fulfilling, and meaningful lives. CWN has been found as a reliable predictor and motivation for environmentally responsible behaviour (REB). The current study is based on a theoretical framework that combines psychological, sociocultural, and ecological views to explain how Alternative Environmental Education Programs (AEEP) can encourage Connectedness with Nature (CWN) among secondary school students in Goa. This framework recognizes that environmental responsibility is driven not just by knowledge but also by deeper emotional, identity-based, and culturally influenced relationships with the natural world. By bringing together theories of CWN and nature relatedness, environmental identity, significant life experiences, and bio cultural diversity, this study sees CWN as a complex concept that involves emotional, cognitive, experiential, and cultural dimensions

Against this backdrop, the introduction of Alternative Environmental Education Programs (AEEP) emerges as a promising pedagogical solution to foster CWN among secondary students. AEEP encompass experiential, participatory, and place-based learning approaches such as nature camps, field immersion, ecological storytelling, arts-based practices, community engagement, intergenerational learning, and reflective activities conducted beyond the conventional classroom. These programs emphasize learning *with* nature rather than merely *about* nature, enabling students to develop sensory awareness, emotional attachment, and ethical reflection through direct encounters with local ecosystems and communities, (Chawla, 2007). In Goa, AEEP have the potential to reconnect students with mangroves, rivers, farms, forests, and coastal spaces while simultaneously engaging with local histories, languages, and cultural practices. By foregrounding effective learning, AEEP align closely with the CWN paradigm, recognizing that sustainable environmental behaviour is rooted not only in knowledge but also in care, identity, and belonging. As a pedagogy, AEEP challenge dominant education models by valuing lived experience, relational learning, and context-specific knowledge, making them particularly relevant for ecologically sensitive and culturally diverse regions like Goa. A well-working AEE programme should be 'action-based'. It means pupils should not only be informed about an issue but they should be provided with an opportunity to deal with that issue; to do their own action and to see a change.

The proposed AEEP aims to put these ideas into practice through a new Biocultural Connectedness framework tailored to Goa's socio-ecological context. The first part of the framework uses theories of CWN and measurement tools, particularly the Connectedness to Nature Scale (CNS) created by Mayer and Frantz (2004) and the Nature Relatedness (NR) scale developed by Nisbet, Zelenski, and Murphy (2009). Mayer and Frantz describe CWN as an emotional and experiential sense of unity with nature, highlighting the importance of emotional connections and a feeling of belonging to the natural world. Their research showed that people who feel emotionally tied to nature tend to act in environmentally friendly ways and enjoy better psychological well-being.

The Nature Relatedness framework builds on this by suggesting that human-nature relationships include emotional (NR–Self), cognitive (NR–Perspective), and experiential (NR–Experience) aspects. Together, these theories show that CWN is a stable but flexible mind-set that can be developed through meaningful experiences rather than simply inherited. In this study, these theories justify the focus on CWN as a key goal of environmental education and highlight the need for teaching methods that go beyond just sharing information to involve emotional and experiential involvement.

The second theoretical aspect involves environmental identity and the idea of the ecological self, as discussed by Clayton and Naess. Environmental identity theory suggests that people form a sense of self that includes the natural environment, which affects their values, attitudes, and actions toward environmental protection. Clayton notes that environmental identity comes from interactions with natural spaces, cultural stories, social norms, and personal experiences, which makes it both socially influenced and based on real experiences.

Arne Naess's idea of the ecological self expands this by suggesting that a mature self includes not just the individual but also non-human nature, ecosystems, and the biosphere. From this perspective, caring for the environment is not just a moral duty but also a realization that harming nature is like harming oneself. This philosophical idea is especially important for adolescents, who are still forming their identities and are highly receptive to experiential and relational learning.

In this framework, AEEP are seen as spaces that shape identity, allowing students to see nature as part of themselves, not just an outside topic, thus enhancing CWN through identity integration. The third element of the framework is the theory of Significant Life Experiences (SLE), mainly advanced by Louise Chawla. SLE theory shows that pro-environmental values and actions in adulthood often come from formative experiences in childhood and adolescence, especially those that involve direct, positive interactions with nature and cultural environmental practices,(Clayton, 2012; Schultz, 2002).

Chawla's research indicates that repeated, emotionally impactful experiences like exploring nature, engaging in community environmental projects, or learning from elders are key in fostering long-term environmental commitment. Importantly, SLE theory stresses that it's the quality and significance of experiences, not their quantity, that matter, suggesting that even a few deep, engaging encounters with nature can have lasting effects,(Chawla, 1998; Chawla, 2007).

This view is crucial for this study, as it frames adolescence as a key stage where well-planned AEEP can provide significant life experiences that strengthen CWN. By offering immersive and supported interactions with local ecosystems, AEEP can help offset the trends of nature deficit and environmental disconnection commonly seen among urban youth in Goa,(Maffi, 2005; Pretty et al., 2009). The fourth part of the framework involves the idea of bicultural diversity and conservation, which connects ecological systems with cultural knowledge, languages, practices, and belief systems.

Bicultural diversity theory argues that biological and cultural diversity support each other and have evolved together, especially in places where people's livelihoods, traditions, and identities closely link to local ecosystems. The loss of indigenous languages, oral traditions, and local practices often happens alongside biodiversity loss, which weakens human-nature relationships,(Sterling et al., 2017). In Goa, this is seen in the decline of traditional ecological knowledge related to agriculture, fishing, forest use, and seasonal cycles, alongside ecological damage caused by tourism, mining, and urban growth. Including bicultural perspectives in environmental education acknowledges that CWN is not just a psychological idea but also a relationship shaped by culture, language, memory, heritage, and community practices.

This aspect challenges one-size-fits-all models of environmental education by highlighting the significance of local context, cultural continuity, and intergenerational learning in building meaningful connections with nature. Bringing these four strands together, the theoretical framework suggests that CWN among secondary students is best understood as a bicultural and emotional relationship formed through emotional connections (CWN and nature relatedness), identity development (environmental identity and ecological self), formative experiences (significant life experiences), and cultural-ecological ties (bicultural diversity).

The innovation of this framework is its introduction of a Bicultural Connectedness approach, which expands existing CWN concepts by integrating cultural identity, language, and local ecological knowledge into how we understand human-nature relationships. While traditional CWN models primarily focus on individual psychological attitudes toward nature, the bicultural viewpoint emphasizes shared memories, place attachment, and cultural practices as essential for maintaining connectedness, especially in areas experiencing rapid social change. The AEEP designed in this study aims to apply this integrated theoretical framework, Noronha, L., & Alvares, C. (2015). Based on CWN and nature relatedness theories, the programs prioritize emotional and experiential learning through direct encounters with natural settings, sensory engagement, and reflective practice. Informed by environmental identity and ecological self-theories, AEEP activities are set up to promote self-reflection, narrative sharing, and ethical discussions, allowing students to weave nature into their sense of self. Grounded in SLE theory, the programs focus on immersive, meaningful, and socially supported experiences that can act as significant life events, rather than just isolated educational activities.

Lastly, guided by bicultural diversity principles, AEEP include local languages, folklore, traditional ecological practices, community involvement, and intergenerational interactions, reconnecting students with Goa's cultural and ecological heritage. By clearly aligning teaching methods with theoretical concepts, this framework ensures consistency between the study's goals, methods, and results. It positions AEEP not just as additional educational programs but as thoughtfully grounded teaching spaces capable of fostering lasting CWN through bicultural engagement.

This framework fills important gaps in environmental education research by showing how emotional, identity-focused, and culturally aware methods can be systematically included in secondary education. Ultimately, the theoretical framework underscores that deepening CWN in Goa requires more than just fostering appreciation for nature in theory; it demands rebuilding emotional, cultural, and ecological ties that connect young people to their era, histories, and futures.

The review of the researches on one hand reveals whole array of Environmental education implemented in schools & factors responsible for connectedness with nature and on the other hand points out research gaps; lack of research work on effective implementation of environmental education in schools so as to bring pro-environmental responsible behavior among students, lack of sustainability in Environmental education, lack of similar research studies in Goa. The aim of Alternative Environment Education in Goa is to facilitate a journey from being passive learners *about* the environment to becoming active, empathetic custodians *of* their place. The programs suggested here are not extracurricular activities; they are a pedagogy of re-enchantment, designed to help students rediscover the magic in their own backyards—from the fiddler crab in the mud to the sacred grove at the edge of the village.The research commencing in 2026 must therefore be transformative, not merely evaluative. It must co-create these learning pathways *with* students, measure success through the GCIs, and contribute to the emergence of a generation that does not just live in Goa, but feels, knows, and fights for its soul.

Conclusion:

The significance of this study lies in its attempt to bridge several critical gaps in existing literature and practice. While international research increasingly highlights the importance of CWN, empirical studies examining how alternative pedagogies cultivate CWN among secondary students in Indian contexts particularly in coastal and biodiversity-rich regions remain limited. Furthermore, Goa's unique experience of bio cultural erosion and ecological pressure has rarely been examined through the lens of effective environmental education. By focusing on AEEP as a pedagogical intervention, this paper contributes to theoretical debates on the affective turn in environmental education, offering localized evidence on how CWN can be fostered during adolescence. Practically, the study holds implications for educators, policymakers, and curriculum designers seeking to move beyond tokenistic environmental instruction toward more transformative, place-responsive educational models. The research study is structured to first situate CWN within broader EE paradigms, then contextualize Goa's socio-ecological realities, examine the role and design of AEEP, and finally assess their potential in fostering CWN among secondary students. One of the main ideas in the study of being connected to nature is about teaching methods that really get people, especially kids and teenagers, to feel, experience, and relate to the natural world. Because people are questioning environmental education that's too focused on just thinking, researchers are looking more at other ways to teach that involve the whole person. This part of the research looks at learning by doing, playing, using art, and learning from different generations, with a lot of help from Bruni, Chawla, and Barrable. These researchers show that teaching methods that come from real life, creativity, and relationships are key to building lasting ties to nature, which is a strong way to help people feel less disconnected from the environment. In doing so, it aims to demonstrate that nurturing emotional and relational bonds with nature is not supplementary but central to meaningful environmental education in a rapidly changing world in general & Goa in particular.

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